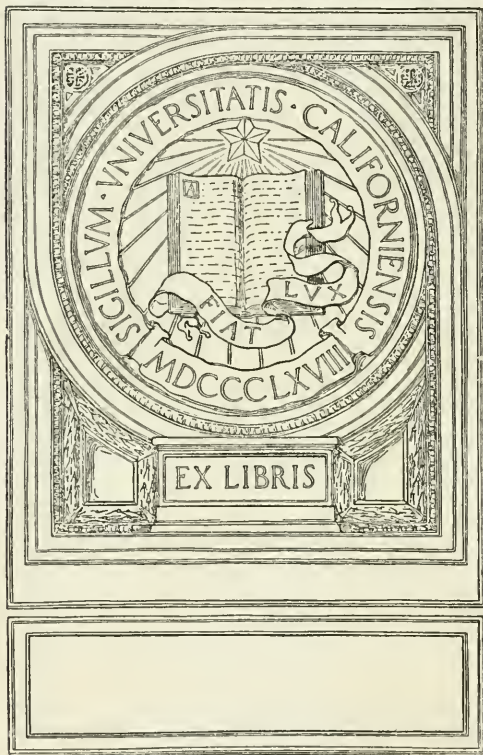




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The
Gold Supply
and
Prosperity

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AT LOS ANGELES



The Gold Supply and Prosperity

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Preface

The first (December, 1905) number of Moody's Magazine contained a symposium on the effects of the increasing supply of gold upon prices, interest rates, industry, etc. Both because of the able men who contributed to this symposium and the—to most men—novel theory advanced by many of the contributors, that more gold means not only continuously rising prices, but rising or high, rather than low, interest rates; and the fact, as was clearly shown, that the values of investments are rapidly changing as a result of the depreciation in the standard of value, there was such a demand for this number of the magazine that the supply was exhausted before the end of December. The demand for the "Gold Symposium" number continuing unabated, together with the many evidences manifested of the growing interest of investors in this vital question, it was decided to republish the Gold Symposium in book form.

Not only have the statistics published in connection with the symposium been brought down to date, but much new material has been added. The "Quantity Theory of Money," as viewed by some of our ablest economists and thinkers, is given careful consideration. "The World's Production of Gold," by A. Selwyn-Brown, an expert, forms an important part of the book. Much new matter as to prices of bonds and stocks has also been added, which not only amplifies the data presented, but which demonstrates that, in practice, events are proceeding in accordance with the theories advanced by most of the contributors to the Gold Symposium.

B. W. H.

Introduction

THE PROBLEM STATED

During the campaign of 1896 and the previous two or three years, when the appreciation of gold was the chief topic of discussion in political and financial circles and when "Coin's Financial School" was causing millions of debtors to believe that an appreciating dollar was silently but surely robbing them, by compelling them to pay in commodities much more than was stipulated in their bonds, many active and trained minds were earnestly studying the problem to see what truth there was in the statements of "Coin" Harvey, Hon. W. J. Bryan, Dr. E. Benjamin Andrews, Hon. George Fred. Williams, Hon. A. J. Warner, Herbert Clark, Hon. Charles A. Towne and others who were teaching and preaching of the injustice of the robber gold dollar.

Many able and conscientious men attempted to expose the fallacies back of "16 to 1" and "bimetallism." Some of them denied that the gold dollar was appreciating. They did not deny that prices were falling, but they said that wages were rising and that, measured by both prices and wages, the purchasing power of the dollar was about stable. Some denied that the decline in prices was due to a scarcity of money and claimed that, with modern methods of doing business, (largely by credits), an immense business could be done with comparatively little money—

providing the money was absolutely sound; that is, providing it had the confidence of the business world. Such men virtually, if not actually, argued that the quantity is of less importance than the quality of money in determining prices.

INTEREST RATES AS A BALANCE WHEEL

Others, of whom the writer is one, reached the conclusion that even if gold were appreciating, when tested by prices, a compensating force was at work which was partly, if not entirely, nullifying the thievish tendencies of the dollar. This force, or factor, was preventing, in part, at least, the appreciating dollar from silently abstracting wealth from debtors and turning it over to creditors.

This factor is the rate of interest which constitutes a part of every contract in deferred payments. Put in its simplest form this compensating force, factor, or law, may be stated as follows:

1. When the dollar is appreciating—that is, when prices are falling—the rate of interest on deferred payments is either falling or low.

2. When the dollar is depreciating—that is, when prices are rising—the rate of interest on deferred payments is either rising or high.

These statements should not be taken too literally. They represent tendencies rather than laws. Thus, if prices are falling at an average rate of 3% a year the tendency is for the (money) rate of interest to be 3% below the normal rate with stable prices. If prices are rising at an average rate of 3% a year the tendency is

for the (money) rate of interest to be 3% above the normal rate with stable prices. In practice, the interest rate is seldom or never fully adjusted to the changing value of money. It is only in a long-continued rise or fall that the money rate is greatly affected. Even then, the change in rate is, apparently, seldom more than half sufficient to counteract the change in the purchasing power of the unit of value.

Thus, there was a general downward tendency of both prices and interest rates from 1873 to 1896 or 1897. Since 1897, there has been a pronounced upward tendency of both prices and interest rates. In point of time the changes in interest rates follow some distance behind the changes in prices, and the changes in prices some distance behind the changes in the quantity of gold. Thus, although the output of gold began to increase in 1888, and was increasing rapidly from 1890 to 1892, yet prices declined until 1896 or 1897, while the interest rate (except for a reaction in 1894, from the panic rates of 1893) continued to decline until 1897 or 1898.

X As suggested above, this theory of the equilibrating action of interest rates was discovered by several thinkers, independently of each other. Prof. Irving Fisher, of Yale University, was one of the first modern writers to carefully consider this theory. His article in the Bond Record of April, 1896, not only stated the theory in full but verified it somewhat by statistics of interest rates in this and other countries.. He summarized his conclusions in this way:

"In short, all the facts go to show that the rate of interest tends to adjust itself to the appreciation or

H.
1896

depreciation of the monetary standard in such a manner as to correct in large measure those gains or losses to the contracting parties which would otherwise arise from variations in the purchasing power of money."

His little volume, "Appreciation and Interest," published in August, 1896, was very full and complete on this subject. In it he said:

"Here the effort will be to show that losses due to 'appreciation,' however defined, will tend to be forestalled. For this it is not necessary to scale the principal of a debt. The principal is not the only or even the chief element in a loan contract. The other element is the rate of interest."

Professor John B. Clark, in the Political Science Quarterly of June, 1896, stated the theory as follows:

"If, with a currency of perfectly stable value, the interest on loans is 5%, corresponding to the earnings of real capital, then a gain in the purchasing power of the currency of 1% a year has the effect of reducing nominal interest to 4%. The debtor then really pays and the creditor really gets the same percentage as before of the actual capital loaned."

These two professors, though not the first to propound the theory, were perhaps the first to grasp and state the great importance of the fact that interest acts as a balance wheel on the value of money used in deferred payments—tending to keep the present worth of a debt always about the same, regardless of great changes in the value of the principal.

PROBLEM REVERSED IN 1896

As is evident from the preceding statements the wheels of progress (as to gold, silver, prices, interest rates, debtors, creditors, etc.) reversed themselves in 1896, 1897 and 1898, when gold began to depreciate and silver to appreciate; when prices and interest rates began to advance; and when the poor, plundered debtor got on top of the rich, grasping creditor and began to rob the robber. Such good use is the debtor now making of his opportunity that he has, in ten years, got back all that was taken from him in fifteen years. He has a "strangle hold" on the unfortunate creditor and may be expected to keep him down until he gives up all that is worth taking.

The "Cross-of-Gold and Crown-of-Thorns" speech would not fit today. Either the cross would have to be made of silver or it would have to be transferred from the once poor debtor to the present poor creditor. Instead of the gold dollar being "the most inhuman, cruel, murderous dollar which any quarter of century in the world's history has produced," as the Hon. George Fred. Williams designated it, this same gold dollar is now the most honest, humane and beneficent dollar the world ever saw—that is, if, according to the theories of Coin's Financial School, a depreciating dollar is as good as an appreciating dollar is bad.

In any case the problem of today is the converse of that of 1896 and previous years. Instead of an appreciating dollar, with declining prices and interest rates, we now have a rapidly depreciating dollar, with rising prices and interest rates. Silver, struck down

by the "Crime of '73," has again lifted up its head and has risen more than 50% in price (from 46 cents an ounce, in 1902, to 71 cents, in 1906) during the last four years.

It is, however, practically certain that the problem of a declining is no easier of solution than is that of a rising dollar. It may be, and probably will be, found that the evils of a depreciating dollar are more real and vexatious and fraught with greater danger to society than were the evils,—largely imaginary—of an appreciating dollar. It may be found that, even more than an appreciating one, the depreciating dollar takes from him that hath not to give to him that hath; that, especially, does it result in decreasing the share of the product that goes to labor. That is, it results in the cost of living rising more rapidly than wages. It may also be found, as is claimed by several professors, that much of the present world-wide discontent, crime and radicalism can be traced to the insidious influence of depreciating money and rising prices. It may be that, as suggested by Professor Norton of Yale, we will soon have government commissions to inquire into the causes and effects of the decline in the purchasing power of the world's standard of value, and to suggest means either of regulating the production and value of gold or of getting rid of gold and substituting some other standard of value. It may be that we shall see, during the next decade, a world-wide agitation against gold that will make the "16-to-1" agitation of 1896 and the greenback and bimetallic agitations of previous years, appear insignificant.

These are only suggestions of some of the dynamic possibilities to industry, politics and society that may lie hidden in a depreciating standard of value. The effects that more directly concern us and that are both more certain and easier of solution are those upon prices and interest rates and, through these, upon investments and incomes. It is with these effects that our contributors have mainly dealt and because of them that this book is published. These are the important effects that now confront investors and all men of affairs.

WHAT MAY HAPPEN

During the last decade prices have risen about 50%. Property and income values, throughout the entire world, have been greatly altered. During this decade the world's stock of gold has increased 50%. But in this decade many important countries have adopted gold as their standard of value, thus creating a demand for much of this surplus gold.

Suppose, as is probable, that the world's gold supply should increase 50 or 100% during the next decade and, suppose, as is also probable, that no important country should, in that time, change from a silver, copper or paper to a gold standard; is it not possible and even probable, that prices would advance even more rapidly than during the last decade? Suppose that, as some expect, prices should advance at an average rate of 10% a year and that, in 1917, they should be 200% higher than now. Think what a revolution would have taken place in values? Cotton would then be selling at

30 cents a pound; corn \$1.50 and wheat \$3 a bushel; eggs, \$1 a dozen; poultry 50 to 75 cents per pound; steak 60 cents a pound; hard coal \$20 a ton; shoes \$10 a pair; sugar 15 cents a pound; brick \$20 a thousand; lumber from \$100 to \$200 a thousand; and other things in proportion.

But would the prices of other things be proportionately high? We know that such would not be the case. In this fact there are many little and big jokers that will play havoc with values and upset the world's industries and, possibly, its governments. Not only will the prices of commodities rise unevenly, articles of necessity and in which speculation is easily possible advancing most rapidly in prices, as a rule, but wages will fall far behind in the race. Comparatively speaking, prices will go up on an elevator while wages will climb the stairs.

But what of the prices and rates charged by public-service corporations? What of 3-cent and 5-cent car-fares, 80-cent gas and 2-cents-a-mile passenger fares? What of freight rates? The most of these are fixed or regulated by state and national governments. It will be no easy matter to get them raised. Not until some of these corporations give up their charters and others are on the verge of bankruptcy will the people, in most cases, consent to have fares, rates and prices raised. Tom Johnson will hardly have gotten his 3-cent fare lines into full operation before the cost of carrying passengers will actually exceed 3 cents; soon after it may exceed 5 cents; in a few years more it may exceed 10 cents.

As certain as night follows day, will there soon be much trouble and tribulation for the stock and bond holders of our railroad, street railway, gas, electric light, telephone and telegraph corporations, if gold continues to decline rapidly in value and interest rates to rise.

This is the great problem that now confronts the financial world and demands solution of every investor. Not to solve it, may mean great loss and, possibly, failure. To solve it, means success and greatly enhanced wealth for all who now either have a fair share of this world's goods or who have credit and can intelligently go in debt for a large amount.

Business men are only just beginning to realize that something unusual is happening in the value and price world. But few have, as yet, got their eyes open to the prime cause of the great changes that are occurring. Still fewer have any clear or comprehensive idea of the far-reaching effects proceeding from the rapid decline in the purchasing power of gold. That these effects may be revolutionary in the financial, industrial, economic, political and social world is, perhaps, beyond the imagination of any but a very few men. Have not prices, wages and values been comparatively stable in the past hundreds of years? What nonsense to suppose that any changes in the standard of value would seriously affect ethics, politics and society! In spite of theorists and dreamers is it not safe to conclude that this old world will, in the future as in the past, proceed on an even keel?

This is about the way the ordinary man of affairs thinks and talks of the problems suggested by the increasing quantity of gold. He is, in fact, the dreamer and will not awaken to the rapidly changing conditions in the investing and business world until he is hit hard and, perhaps, kicked and pounded. He has held bonds while they have declined 10, 20 or 30% in price and he has no clear idea of the cause of the decline. He imagines that the decline is only temporary and that prices will soon begin to recover and will some day be as high, and perhaps higher, than ever before. He sees some stocks rising rapidly and others declining sharply without realizing that there is a fundamental cause that accounts for many of these changes, whether up or down. He considers himself a good judge of values and advises his friends to buy bonds now when they are cheaper than ever before and to sell stocks that have gone up 30, 50 or 100 points in the last few years. He is judging the future by the past. Ordinarily his advice would be good. He does not realize that we are now entering upon, and even passing through, an era that has no counterpart in the past.

While the contributors to the gold symposium touch but lightly upon some of the effects and problems growing out of the increasing supply of gold, some of them do open up many questions of great importance to business men. No business man can afford not to read these articles and many others that will undoubtedly appear on this subject during the next year.

THE QUANTITY THEORY OF MONEY

While practically all economists agree that the quantity theory of money has some force; that is, that more money tends to cause prices to rise and less money tends to cause them to fall, yet, unfortunately, there is no general agreement as to the relation between money and prices or, indeed, as to what kinds of money and what kinds of commodities have influence in fixing prices.

As this question is fundamental and must be considered, when theorizing and prophesying as to what will be the effects of increasing gold production and supply, considerable space has been given to a discussion of this subject. Copious extracts are reprinted from a symposium on this subject in *Moody's Magazine* of September, 1906. This discussion precedes the discussion of the effects of the increasing supply of gold. It is necessarily somewhat academic and didactic. It is, however, so essential a factor in the problem that it could not be entirely disregarded. Those who think it safe to assume that more gold means higher prices, and that, other things being equal, there is a somewhat close relation between prices and the quantity of gold in the monetary world, may prefer to omit the reading of this discussion.

The Quantity Theory of Money

THE six articles immediately following appeared as a symposium in Moody's Magazine for September, 1906. They are here reprinted in full, except that about one-third of Mr. Keeler's article is omitted. The occasion of the symposium was the following letter sent to some fifteen or more authorities on money and prices. In fairness to Mr. Keeler it should be said that his article was contributed to Moody's Magazine without any idea that it would form any part of a symposium:

"Mr. Bronson C. Keeler, of St. Louis, has written an article for publication in Moody's Magazine which brings up at least two very important questions. (1) The quantity theory of money. (2) Accepting the quantity theory, what is money?

"Mr. Keeler accepts the quantity theory. He holds that the price of money, as of commodities, is determined by supply and demand. He, however, makes the price formula as follows:

$$p = \frac{v m}{c}$$

in which m represents the number of units in the commodity fund, v the average velocity of circulation and c the volume of the commodity offered for sale. He says that

“ ‘Bank credits, uncovered paper money, and similar expedients, are not money, although often so called. They are velocity of circulation.’

“Apparently he does not limit the original money, standard-of-value money, to gold, or to the precious metals, or even to things having intrinsic value. ‘It is not necessary,’ he says, ‘that the standard of value should possess utility, or even tangibility. Its essential is that it should effectually control the issue of paper money.’

“Reference to several authorities on money indicate that there are indeterminate factors both as to money and commodities. Just now, when prices are rising, supposedly because of the rapidly increasing quantity of gold, it is extremely important that some sort of an understanding be reached, if possible, as to what constitutes money and commodities, in their price-determining functions. Will you not kindly state briefly, for *Moody's Magazine*, your answers to the following questions?

“1. To what extent are prices determined by the supply of and demand for money?

“2. What kinds of money count in fixing prices?

- (a) One or more intrinsic-value moneys?
- (b) Representatives of intrinsic-value money?
- (c) Credit currency—bank notes, checks, etc.?
- (d) Fiat money, if made legal tender and restricted as to issue?
- (e) Fiat money, if unrestricted?

“3. What kinds of commodities count in making a demand for money and in fixing price?

- (a) All goods produced?
- (b) All goods exchanged?
- (c) All goods sold for cash?
- (d) All goods sold for cash or credit?

"4. To what extent are prices affected by the rapidity of circulation of money and what instruments affect rapidity of circulation?

"5. To what extent are prices affected by the rapidity of exchange of commodities?

"A general will be as acceptable as a categorical answer to these questions."

By BRONSON C. KEELER

The denial of the quantitative theory of money will one day take its place in the museum of intellectual curiosities alongside the denial of the sphericity of the earth; since both propositions are self-evidently true to any man who will look at the surface facts dispassionately. Yet both have required elaborate demonstration, and I have seen, in this month of July, 1906, the quantitative theory denied in the editorial columns of one of the greatest daily papers in the United States. For generations it was admitted by all; and it was the exigencies of political, and not of economic, debate which first brought about its rejection. Prof. Henry Dunning Macleod, a learned but fervid English writer, first led the way; and he was followed by zealous imitators, who equaled him in hysteria but not in erudition.

The increasing output of the gold mines, and the profound rearrangement it is having upon values

throughout the world, render the subject of pressing importance at this time.

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STANDARD OF VALUE

It was a notable saying of John Law, "Money is not that for which wealth is exchanged; it is that by which wealth is exchanged"

The standard of value, then, is some one thing by which all other things are exchanged. Anything can be used as a standard that the people will; and shells, beads, tobacco and many other things, as well as gold and silver, have been so employed. It is only necessary that the people should, for any reason, act together in making all commodities exchangeable through that one thing. Experience has shown that if government declares anything to be a legal tender for debt, that action will, of itself, cause that thing to become a standard of value. And this is the method now employed by governments in establishing a standard of value. Paper answers quite as well as anything else, but for the difficulty in controlling the amount. The object of stamping the money function on the precious metals is to limit the issue, to keep the numerator of the fraction more constant.

Money is any measure of value which acts as a medium of exchange.

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A standard of value need not necessarily circulate. Its representative, paper money redeemable in the

standard, may circulate instead. Indeed, Ricardo declares that one function of a standard of value is to determine how much paper money shall be issued. A measure of value, on the contrary, must circulate. It cannot be a measure unless it does.

Nor is it necessary that the standard of value should possess utility, or even tangibility. Its essential is that it should effectually control the issue of paper money. The distance from here to the sun could be made the standard. Suppose that we assume that distance to be one hundred million miles, that we issue that many paper notes, each representing one mile, each note called a dollar, and declare them a legal tender. Prices would adjust themselves to this money, sales would be made, and debts would be contracted. But as human ingenuity increases the means of production, prices would tend to fall, because, while commodities increased, there would be no increase in the standard, and no increase in the volume of money. Suppose that it were apparent that the volume of commodities having doubled, prices would fall one-half. This would benefit creditors and injure debtors.

EQUALITY BETWEEN DEBTORS AND CREDITORS

The question would arise: Who was entitled to this increase in the purchasing power of money, the debtor or the creditor? The debtors would claim it, on the ground that if things remained in statu quo they would repay twice the purchasing power that they borrowed; and they would urge that the volume of notes be doubled, making them 200,000,000, and

each note representing one-half a mile. This would cause the purchasing power of each note to remain unchanged, and would preserve the equities of the case, so far as debtors were concerned. But the creditors would say that when they made the loans, they did not lend purchasing power, but a definite amount of the standard; and they would object that they were being wronged, in that the government was about to put only half as much distance in the dollar as was in it at first.

Or, suppose, on the contrary, that the volume of commodities should decrease as compared with the volume of money, say one-half; and that prices should double, so that a dollar would buy only one-half as much as it would before. This would injure creditors and help debtors. The creditors might propose a reduction in the number of outstanding dollar bills to one-half, to 50,000,000, making each bill represent two miles, but maintaining the purchasing power of each one to its former efficiency. This would maintain the equities of the case, so far as they were concerned. But the debtors would object. They would claim that what they had borrowed was not purchasing power, but the standard of value; and that they would be wronged by the proposed change, as they would have to pay back twice as much distance as they had received from the creditors.

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DEMAND, SUPPLY AND PRICE

Having determined the relations between the

standard of value, the measure of value, and money, it will be seen that while

	is the ratio at which	will exchange for
Value	a commodity	another commodity
Price	a commodity.....	money.

While the value equation is $v = \frac{d}{s}$, the price

equation becomes $p = \frac{m}{c}$; that is, price equals money divided by commodities. The two equations are identical, except for the necessary change in technical terms, and the definition given above of value is applicable to price; both being the quotient obtained by dividing demand by supply, and expressing the result in terms of demand. In the price equation, money is the demand, or that through which demand voices itself; commodities are the supply; and price is the quotient.

To deny the quantitative theory of money, to assert that the amount of money in use is not a determining factor in prices, is to assert that the size of a numerator has nothing to do with the amount of the quotient.

A most important point to be noted is the difference between value and price, itself a corollary of the quantitative theory of money, lying in the fact that while there can never be a general rise or a general fall in values, there can be a general rise or a general

fall in prices. This is due to the fact that, in value, all commodities exchange for all commodities, and an illustrating figure would be a lattice work; while, in price, all commodities are exchanged by one thing, money, and an illustrating figure would be a hub with spokes converging into it from all directions.

Each country in the world receives its distributive share of an international standard of value, and that share constitutes the measure of value of the property offering for exchange in that country. Each community receives its distributive share of the country's share, and each man in the community receives his distributive share of the community's share.

DISTRIBUTION OF MONEY AND COMMODITIES

These distributive shares are divided into commodity-funds, a certain percentage of the total being used as the measure of the several commodities exchanged. Thus, in an average community, about 15% of the money goes for rent, and constitutes the rent-fund; about 45% for food, about 15% for clothing, about 5% for fuel, and so on. These commodity funds vary from season to season, and from minute to minute. They may be formed instantly, as when a man suddenly sees something new which his fancy impels him to buy on the spot; and they flow from one to another readily. What in winter constitutes the heavy-underwear-fund, in summer may go into the fresh-vegetable-fund, or the ice-cream-fund. When at 10.32 a. m., June 26, 1906, 5,000 bushels of July wheat sold in the Chicago wheat pit for $81\frac{1}{2}$ cents a bushel,

it was because at that instant there were at that point \$4,075 in the wheat-fund and 5,000 bushels willing to exchange at that price. And when, two minutes later, 10,000 bushels sold at $81\frac{5}{8}$ cents, it was because, with telegrams pouring in from all over the world, there were, at that instant, \$8,162.50 in the wheat-fund pressing for the purchase of wheat at that price. Both the demand and the supply had increased, but the demand had increased faster than the supply, the numerator of the fraction had grown faster than the denominator, and the price rose. If, in New York City, today, 10,825 chocolate eclairs sell for one cent each, it is because the confection makers know, from experience, that there are about \$108.25 in the chocolate eclair fund there.

In general, at any time, at any given point, the price at which a commodity sells is determined by the amount of money in that commodity-fund divided by the quantity of that commodity offered for sale. The division is performed by the interplay of demand and supply; by what Adam Smith called "the higgling of the market."

A moment's reflection will satisfy any practical man that these commodity-funds are real entities and not theoretical. Every congress or legislature, in passing an appropriation bill, recognizes their existence; otherwise, the same amount of money would be set apart for each item, as much for cuspidors as for a Panama canal. What man of mature years has not sat down to estimate the next year's expenses, and in thus doing has allowed so much for this, so much for

that, according to his attained income? When he did these things, he recognized the existence of the commodity-funds and the quantitative theory of money. A second reflection will convince a man that while these commodity-funds differ from time to time, and under varying circumstances, they yet bear a certain fixed ratio one to another. For example, the clothing-fund will always be larger than the black-pepper-fund. And a third reflection will convince him that each commodity-fund in a community bears a ratio more or less fixed to that community's distributive share of money. Statistics also confirm this abundantly. If the value of money changes either way, relatively to the volume of commodities, the percentages will remain the same, and therefore prices must change correspondingly, otherwise the money would not be in the community's distributive share.

These facts of every day observation prove the quantitative theory of money.

VELOCITY OF CIRCULATION

However, the volume of money in use is not the number of pieces in circulation; but what John Stuart Mill called "the efficiency of money"; which is the number of units in circulation multiplied by the average velocity of circulation of each unit. A one-dollar piece, passing from hand to hand ten times in one day, does as much work as a ten-dollar piece changing hands but once in a day. The efficiency, therefore, is represented by the term vm , meaning thereby the average velocity of each measure multiplied by the num-

ber of measures. Every price equation, therefore, is

expressed, $p = \frac{vm}{c}$, in which p stands for price, v for

average velocity of circulation, m for the number of money units in the commodity-fund, and c for the volume of the commodity offering for sale. Or, p may stand for the average price level of the community or of the country, vm the efficiency of the measure of value, and c the total volume of commodities offering for sale.

This is what those financial writers have had in mind who said that the amount of money in use was not the determining factor in prices. They meant that even with a smaller amount of legal tender money in use, if the velocity of circulation were increased correspondingly, prices would not change. Technically this is true; but they have never stated their case correctly, and they have ignored the fact that money precedes velocity, and that quality of circulation is better than velocity.

If their theory were correct, it would be absurd for government to coin so much money. It should coin only one piece, and let that circulate rapidly enough to prevent a fall in prices.

BANK NOTES AND CREDITS INCREASE CIRCULATION

When a bank with a legal tender dollar on deposit issues one paper note against it, and that paper note passes from hand to hand, it creates a simple velocity of circulation; so-called, because only one man can use the same dollar at the same time. It is a velocity

of one-to-one. But when a bank issues four paper dollars against one legal tender dollar, as the law permits with us, it creates a compound velocity of circulation, because four men can use the same dollar at the same time, and the velocity of circulation is four-to-one. Bank credits, uncovered paper money, and similar expedients are not money, although often so called. They are velocity of circulation.

Any velocity of circulation above the normal average tends to raise prices, no matter how it may be attained. But no rise in prices can produce a monetary crisis, if the rise is caused by a velocity of circulation of one-to-one and without mortgage indebtedness; for each debt is extinguished with each passing of the money. But a rise in prices caused by a compound velocity of circulation can cause a panic, because there is always present the indebtedness at the bank, and very often a further indebtedness created by the buyer in addition. That is, the purchaser often pays the equity with a debt at bank, and creates a subsidiary debt besides.

Whether bank notes, bank checks, drafts, etc., tend to raise prices depends entirely on whether or not they increase the velocity of circulation, and this can only be told by an examination of each individual case. This is why the discussion of this question, pro and con, has been so indeterminate.

The world never had a monetary crisis until Pater-son invented the compound velocity of circulation.

Prof. Macleod once said that he had never seen a banker who could define his own business, meaning by "banker" an officer in a bank of issue; and then he

dropped the subject without giving the definition himself. A bank cannot be defined as a house that lends money. A money lender does that. Nor as a house that discounts paper. A note shaver does that. Nor as a place where money can be left for safe keeping. A safety deposit vault does that. A bank is an institution that is permitted by law to create a compound velocity of circulation of money.

Before leaving this subject it may be well to note the different conditions under which changes in price will occur by the quantitative operation of money. They are disclosed in the following table:

QUANTITY OF MONEY AND PRICES

If the volume of money, the numerator of the fraction,	and if the volume of commodities, the denominator of the fraction	Prices will
Increases	increases equally.....	remain stationary
	increases faster.....	fall
	remains stationary.....	rise
	decreases.....	rise
Remains stationary	increases.....	fall
	remains stationary.....	remain stationary
	decreases.....	rise
Decreases	remains stationary.....	fall
	decreases equally.....	remain stationary
	decreases faster.....	rise
	increases.....	fall

It will be seen from the last column of the table that there are eleven price resultants possible under the different conditions of demand and supply: four in which prices rise, four in which they fall, and three in which they remain stationary.

GOLD PRODUCTION AND PRICES

Whether the increasing output of gold from the mines, now under way, is to result in a constant rise in prices for a series of years, will depend upon whether the production of commodities, under the improved methods of machinery and under the stimulus of greater profits from the rising prices, will not increase commensurately with the production of gold. If the average price level continues to rise, it will be proof positive that the volume of money is increasing faster than the volume of commodities. If the average price level remains stationary, it will indicate that the production of commodities has overtaken the supply of money. And if the average price level falls, it will indicate that the volume of commodities is increasing faster than the volume of money. The wise investor will note carefully, all the time, the output of the mines and a standard index number. If gold production continues to increase, and the general price level continues to rise, he will dispose of his bonds and mortgages, and invest the money in property. But when the gold production falls off, he will sell his property, anticipating a fall in prices, and will invest the funds in contracts calling for the payment of specific sums of money—such as bonds and mortgages.

Volume of Money Determines Prices

By GEORGE M. COFFIN

ANSWERING your questions in a general way, I think that the volume of money in circulation in any country has a decided influence on the prices of all commodities measured in money; and, inversely, that the prices of money measured in commodities is also influenced by the supply of money. And this because the prices of money and all other commodities are subject to the universal law of supply and demand, which causes them to act and react on each other.

By money I mean any kind of coin or paper currency not covered by coin issued either by the Government or the banks (for instance, U. S. notes and national bank notes) which has the purchasing power of coin, even when not redeemable in coin, as in the United States from 1861 to 1879.

Gold itself is a commodity used in the arts and sciences, but most largely as the standard money of commerce and the ultimate measure and test of redemption of other kinds of money, because it is relatively scarce, and has certain inherent or intrinsic qualities of weight, non-corrosion, indestructibility and others which, by the almost universal judgment of mankind, best fit it to its use as money. As an illustration of the effect the volume or quantity of various kinds of money has had on business and prices in the

United States, see the following table showing the stock of money in circulation in 1847 and at various periods of financial stringency or panic occurring thereafter, the percentage of increase of money and of population, respectively, between these periods, and the kinds of money constituting such increase:

STATISTICS OF MONEY, ETC., FOR 1847 AND PANIC.
YEARS THEREAFTER

Year	Stock of Money in the United States. (millions of dollars)	Per cent increase in stock of money	Percentage of increase in population	Kinds of Money Constituting Increase
1847	224			
1857	457	104	40	Gold and State bank currency— chiefly gold.
1873	752	66	48	Greenbacks and National bank notes— gold and silver at a premium.
1884	1244	65	30	Gold chiefly and 275 million silver dol- lars. Specie payment resumed 1879.
1893	1579	30	20	Gold; 252 million silver dollars and 156 million Treasury notes.
1903	2367	48	21	Gold chiefly with 212 million National bank notes.

My theory is that the great additions of money of various kinds—gold, silver, State bank notes, United States notes and national bank notes—to the general stock between these periods so stimulated speculation and inflation, or increase of commodity prices, as to produce panic and afterwards depression of prices.

All this because this increase in stock of money became the basis for bank credits which added checks, drafts and other instruments of credit to the volume of the circulating medium. For example, every dollar

of gold or greenbacks brought into New York City from outside and added to the cash reserve of any clearing house bank becomes the basis for three (3) dollars of additional bank credits in the form of loans, or other investments.

Applying this rule to the commercial world at large, it can readily be seen what effect on commodity prices must be produced by the annual addition to the world's stock of money of some 400 million dollars of gold taken from the mines and, at the ratio of three to one, forming the basis for \$1,200,000,000 of fresh banking credits. As prices rise the purchasing power of a gold dollar decreases, and in this sense it can be said that the price of gold is decreasing.

Statistics show that since 1897, when they were quite low, commodity prices have increased about 45%, due chiefly to the large accession to the stock of gold and national bank notes already referred to in the table given, coupled with confidence in the ultimate money of redemption secured by the practical establishment of the gold standard in the United States.

In Great Britain, although there has been no great addition to its stock of silver coin and an actual diminution in the amount of uncovered bank currency in the past 60 years, commodity prices have been influenced in the same way as with us, by an increasing stock of gold, the continued use of such uncovered bank currency as was permitted 60 years ago, plus the very extensive use of checks, drafts, etc., based on a very moderate metallic reserve, and circulating through the clearing houses.

Quantity Theory Approved

By PROF. IRVING FISHER

IT is difficult to state briefly and, at the same time, definitely the causes which influence the value of money or the level of prices. Much has been written, both by the wise and the foolish, on the subject of the "quantity theory of money." Consequently theories going by that name are both true and false; and one who states that he believes in the quantity theory, or does not believe in it, is very apt to be misunderstood.

NEWCOMB'S "EQUATION OF SOCIETARY CIRCULATION"

Correctly stated, the theory is certainly true that the price level in any community is proportional to the volume of the circulating medium, provided its velocity of circulation and the volume of business transactions remain constant. One of the clearest as well as most elementary statements of this subject is that of the astronomer, Simon Newcomb, who, in his "Political Economy," develops what he calls the "equation of societary circulation." This states that the volume of the circulating medium, multiplied by its velocity of circulation, is equal to the price level multiplied by the volume of business transactions. For a more minute analysis, the first member of this equation may

Price
level

be resolved into two terms, one related to money proper and the other to the volume of bank deposits which form the bulk of "credit money."*

money (The mechanism represented by this equation of circulation will be different according to the monetary standard of the country—whether it is monometallic, bimetallic, or consists of irredeemable paper money. In the American system of monometalism there is worked out an economic equilibrium between gold as money and gold in the arts, through the alternate melting or minting of any excess of gold in either of these two forms, as compared with the other. But this mutual interplay is of itself by no means sufficient to determine the value of money; for mathematical examination will show that the number of unknown quantities is greater than the number of determining conditions. There is, therefore, room left for the co-working of the influence above mentioned; namely, that expressed in the equation of circulation. This formulates the influence on price-level of the following causes: (1) the volume of money proper—gold and gold certificates, silver and silver certificates, subsidiary silver, minor coins, greenbacks and bank notes; (2) the volume of credit currency, that is, the sum of the "individual deposits" in national and state banks available for transfer by check; (3) the velocity of circulation of money proper; (4) the velocity of circulation or rate of turn-over of bank deposits; (5) the volume of business transacted.)

* See an article by the present writer in the British Economic Journal, December, 1897. "The Role of Capital in Economic Theory." pp. 512-521.

CREDIT CURRENCY DEPENDS ON MONEY PROPER

A full study of these causes, and especially of their relation to each other, has never been made. There has been much dispute as to whether credit currency operates on prices in the same manner as money proper. To this the answer which we should give is that the magnitude of each of them being given, they influence prices in precisely the same way, but that the magnitude of the bank deposits is dependent upon the magnitude of the monetary circulation. Normally, the bank deposits vary with the volume of money, but the connection between the two is very elastic, especially during periods of commercial upheaval, when a new economic equilibrium is being found.

The equation of circulation, when properly understood, shows that it is not all goods which tend to regulate prices, but only such goods as are exchanged by money or checks (which merely transfer bank deposits). Those goods which change hands often have a greater influence on prices than goods which change hands seldom.

An inviting field for statistical study is offered by the velocity of circulation. Pierre d'Essars has shown that the rate of turn-overs of bank deposits varies enormously in Europe, for instance, from 160 times a year in the Reichsbank of Germany to less than once a year in the Bank of Greece. Similar variations have been found by the present writer in this country. The velocity of circulation for money proper has never been properly computed. Judging from the rate of turn-over among Yale students, it would be something like once a week.

gold
It is clear that the causes which work upon the price level in any community are complex. Any effort to predict changes in price level needs to be based on a wide knowledge both of economic theory and of economic facts. It is safe to say, however, that ordinarily the causes of the greatest importance are fluctuations in the volume of business transacted, and in the quantity of money proper, to which other forms of money will, in the long run, be more or less proportional. In short, prices in gold countries depend chiefly on the amount of business and the amount of gold.

Many Indeterminable Factors

By MAURICE L. MUHLEMAN

IN the application of the quantitative theory of money and prices to certain phenomena, such as the concurrence of low prices and an over-supply of money, as was the case in 1897, it appears that another factor must be considered. This seems to be the relative activity or inactivity of capital. The term velocity of circulation does not embrace this factor except, perhaps, in an indirect and partial way. For while velocity is dependent upon activity of capital, employment it does not measure the full effect thereof; and without this the extent to which the money supply affects prices seems indeterminable.

All the "kinds of money" mentioned in the list of questions, "count" in this influence, although in varying degrees. Of course, all substitute forms which are certain to procure gold on demand are substantially as effective as gold; but even "fiat money" is not to be excluded; indeed this undesirable form is usually more potent in its influence, so long as accepted, than other forms.

Respecting goods "all produced"—the maximum supply—would no doubt count most if determinable; but "goods exchanged" make current prices, at least until the unexchanged surplus becomes apparent.

Distinctions between cash sales and credit sales should not be disregarded, even though the effect of the difference is probably not of great importance.

Rapidity of circulation of money and rapidity of exchange of commodities, are indicators of the status of the demand; as such they probably have indirect influence upon prices; the extent thereof does not appear determinable.

As to instruments affecting the former it would appear a normal proposition that those forms of money classifiable as "superior"—i. e. nearest to actual gold—would exert the more potent influence; yet this seems open to objection; for all the money substitutes have such an influence. Here again, however, the activity of capital, representing, of course, the general credit status, appears to operate; sluggish exchanges are coincident with absence of credit, which affects the money substitutes; and thus there may be falling prices with an ample gold supply for ordinary reserve purposes, apparently negating the quantitative theory.

Difficulties of the Quantity Theory

By HENRY FARQUHAR

OF all contested points in economics, few or none have been so uncompromisingly contested as the quantity theory of money and prices.

In one of the last papers by the late General Walker, that exceptionally lucid and able writer opened the discussion by speaking of the theory as incontrovertibly established—in fact, one of the truisms of the science. Yet there are many capable thinkers who treat the quantity theory as a mere infatuation, and hardly entitled to the consideration of rational men.

Strange as it may appear, yet it is probably true that both sides are right; what passes by the same name being an altogether different thing in the mind of the two disputants. General Walker was not mistaken in believing that the exchange power of the monetary standard depends on supply and demand, as fixedly and necessarily as does that of everything else to which value attaches; for, whatever the mathematical statement of the law may be, there can be no reasonable doubt of the direction in which it works; prices rise, for example, with an increased supply, and fall with a reduced supply, of the money metal. But the other side is quite as well justified in maintaining

that certain current statements of the law, by which monetary supply and prices are related, are misleading and result in absurd conclusions.

It has been assumed, as if a necessary result of the action of supply and demand, that the prices of commodities must be directly proportional to the number of monetary units in circulation; from which it would follow that the aggregate purchasing power of all circulating monetary units must be a constant, and that the purchasing power of each unit must increase without limit, as the number of them decrease. These conclusions might be accepted if there could be but one money, in which all exchanges must be made; but it does not hold in practice, because barter replaces money exchanges when coins become scarce. Thus we have had as money, "pounds of tobacco" among our early colonists, "ponies" on our Indian frontier, "sheep" and "bullocks" among the herdsmen of the plains. This makes it impracticable to formulate prices as varying directly with number of monetary units, and necessitates a more complicated formula. The variation, perhaps, may be proportioned to the number of such units plus some constant, so that it may, in no case, fall quite to zero.

The psychological element in price, however, is perhaps incompatible with the satisfactory expression of it in mathematical terms, for price is not merely the expression of a relation between present demand and supply; it is also an expression of a belief as to how that relation will be before the article purchased is consumed. Belief depends largely on temperament, in

the individual; and it is affected by many not easily calculable causes, in the multitude. Confidence is epidemic and so is panic; so the disposition to speculate and the disposition to hoard. All these dispositions, pervading the people in general, influence prices, and by their influence vitiate any conclusion we may draw from the most skilfully-devised formula. Any law of prices, therefore, must be taken with the proviso "other things being equal," and the clear understanding that other things are quite likely to be not equal.

Quantity Theory Unqualified

By HON. A. J. WARNER

YOU ask to what extent are prices determined by the supply of and demand for money?

It would be a correct answer to say—entirely.

Money on the one side to buy with, and things to be bought and sold on the other, determine how much money shall be given for this or that thing, and that constitutes price.

But What is Money? The late Francis A. Walker in defining Money, said: "That is money which does the work of money." I know of no better definition.

DEFINITIONS OF PRICE AND VALUE

Price and Value, however, are not the same.

Value
The value of one thing is another thing for which it will exchange even. Value, therefore, is always a ratio between two or more things, or, as defined by Macleod, "A ratio between two or more economic quantities."

The value of a thing in money is price. Money itself, properly speaking, has no price. The term price, however, is often used to denote interest for the use of money, but never, properly, to denote its value in other things, or its purchasing power.

The value of one thing as compared with another, as one commodity compared with another, if free

from monopolistic control, depends on the law of supply and demand; but the values of things in money depend wholly on supply of money as compared with its use, or the demand for it. I know of no other factor entering into the determination of price but quantity of money, on the one hand, and things to be exchanged for money, on the other. Hence, price levels may go up or go down without affecting the relative values of things among themselves; only their value in money, price, is thereby affected. Not that all things rise and fall evenly or exactly at the same time, under the influence of an expanding or shrinking volume of money, but an upward or downward movement in price levels sooner or later affects all things. This law was clearly stated by John Locke more than a hundred years ago.

The answer to your question, "What kinds of money count in fixing prices?" is included in the above definition of money. All kinds, not all to the same extent but all kinds to the extent that each kind does the work of money.

For instance, if greenbacks and national bank notes have the same general acceptance in trade and in the discharge of obligations that gold has, then they have the same effect on prices as the gold they take the place of would have.

So with other forms of money. To the extent they take the place of gold and do the work of gold, to that extent they have the same effect on prices. This is a well settled law.

NO SUCH THING AS INTRINSIC VALUE

As to "intrinsic value money," I answer; there is no such thing as intrinsic value in any thing. The idea of intrinsic value in money has been discarded by the best writers on economics for two hundred years.

Does anybody believe the so-called Gold Standard to be an invariable standard, as it would be if its value were intrinsic? Is it the same standard now with a production of \$450,000,000 a year that it was in the seventies with a production of \$100,000,000? If its value is intrinsic it cannot change and \$1,000,000 would have the same value as a thousand millions. But everybody who knows anything about the laws of money knows better.

Value is intrinsic in nothing. Nothing can contain within itself that for which it will exchange.

Everything has intrinsic qualities. Gold has color, specific gravity and other qualities peculiar to itself. Radium, that element which for the quantity now in existence is the most valuable of all substances, contains the intrinsic property of radio activity in a marvellous degree, but its value, like everything else, depends upon the quantity to be had as compared with demand for it. If it should eventually become as abundant as copper, there is no telling to what its price would fall.

You ask about Fiat Money. The value of fiat money depends on the same general law as stated above. This is, on the quantity as compared with its use. If issued in excess its value will fall proportionately; nor does the fact that such money is declared to

be legal tender, always give it general acceptance. Its acceptance depends largely on the authority and standing of the country declaring it legal tender. Unrestricted fiat money might become worthless from its very abundance, as in the case of Confederate money.

As to the kinds of commodities that count in making demand for money, I answer all kinds. Everything that is or can be bought or sold stands over against money. The fact that goods may be sold on credit does not change the great law that determines prices; the fact that credit is asked before final payment may make the prices of such articles higher or lower, but the general law is not changed thereby.

As to the rapidity of the circulation of money as a factor in determining prices, I answer:

That the value of one thing or one commodity in another does not depend on the rapidity with which swapping is done. Price levels are determined by the available supply of money, and by price levels I mean, of course, the relation generally, of goods—commodities, property of all kinds—to money. The quantity of money available at a given place at a given time may and doubtless does, locally, affect trade and prices; but, over the whole country, I doubt if rapidity of circulation is a calculable quantity in determining prices, nor does it affect the general law above stated.

Prices Vary With Money Supply

By PROF. E. W. KEMMERER

THE following is a brief general statement of my opinions concerning the questions you ask.*

The price of a commodity is its value in terms of the value of the money unit. Prices vary in accordance with the law of demand and supply. Anything which affects the demand or supply of commodities or the demand or supply of money affects prices.

By money I mean (modifying Walker's definition):

money That which passes freely from hand to hand throughout the community, in final discharge of debts and full payment for commodities, being accepted equally without reference to the character or credit of the person who offers it, and without the intention of the person who receives it to consume it or enjoy it otherwise than in tendering it to others in discharge of debts or payment for commodities.

This definition is based upon the most important function of money, the function from which all others are derived, viz.: that of serving as a common medium

* Professor Kemmerer's views on the relation existing between money and prices are stated in detail in a monograph on the subject of "Money and Credit Instruments in Their Relation to General Prices."

of exchange. It classifies all media of exchange together which performs that function in the same way. It has the additional advantages of being workable, and of conforming to popular usage.

The money supply should always be interpreted in terms of its rate of turn-over, so likewise should the commodity supply. The price relation may be expressed in the following formula, in which

M equals the total number of money units,

R equals their average rate of circulation,

N equals the total number of commodities (including under the term commodity everything which is sold).

E equals their average rate of exchange,

P equals the average price of all commodities exchanged,

C equals the total amount of checks used in the exchange of commodities,

Rc equals their average rate of circulation,

$$P = \frac{MR - CRc}{NE}$$

Money and checks not exchanged for commodities and commodities not exchanged for money or checks have zero rates of turnover and accordingly cancel out in the formula.

Assuming a given state of credit development, and a fixed amount of business, the proportion of deposit currency (CRc) to bank reserves is a function of business confidence; and, business confidence remaining the same, an increase in the monetary circulation

is accompanied by a proportionate increase in bank reserves and in the deposit currency which they support; a decrease in the monetary circulation has the opposite effect. This being true, the old quantity theory is still valid, in spite of all the complexities of our modern industrial regime, and general prices, other things equal, vary proportionately and in the same direction with variations in the money supply.

Under a system of free and gratuitous coinage the value of the money unit and the value of its metallic content cannot appreciably differ. The use of token coins, of paper money of all kinds, and of checks effect an economy in the use of the standard money metal and thereby influence the supply of standard money and affect the value of the money unit. The direct influence of such media of exchange upon prices is essentially the same as that of standard money.

The questions you ask are too complicated and at the present time too controversial to permit a satisfactory answer in a few hundred words. The above statement gives somewhat categorically my general views on the subject.

The World's Gold Production

By A. SELWYN-BROWN

FEW subjects afford a more interesting study than the production of the principal commercial metals which are so intimately involved with industrial prosperity. Of all the metals gold claims the greatest attention, by reason of its importance as the universal standard of value. The far-reaching effects of its comparative abundance or scarcity have long been favorite subjects for theoretical discussions.

Many still remember the sensations caused in Europe, between 1890 and 1896, by the pronouncements of Dr. Suess, a professor of geology in the University of Berlin, asserting, on supposed geological grounds, that the world's gold supplies are limited, and that, within a comparatively short period, we would have to submit to regularly diminishing annual yields, which would result in industrial and financial depressions and panics of unparalleled severity.

Facts have not to date verified the professor's prognostications. In recent years the phenomenal yields of some of the Australian, American, Alaskan and South African gold fields have caused estimates of the gold output of the future to be most optimistic. Early this year, the director of the United States mint estimated that during the next 20 years the world's

gold production will average \$400,000,000 per annum. Consequently, in two decades, a total of \$8,000,000,000 in gold will be added to the world's supply. Allowing the usual 25% for gold used in the arts, there will remain \$6,000,000,000 worth for monetary purposes.

The world's total production in modern times has amounted to over \$10,000,000,000. Figures recently compiled by J. P. Hutchens (*) indicate that the gold production of those countries in which statistics have been kept is as follows:

WORLD'S GOLD PRODUCTION IN MODERN TIMES

The United States.....	1792-1905....	\$2,860,854,000
Australasia	1851-1905....	2,539,117,000
Russia and Siberia.....	1814-1905....	1,434,679,000
Colombia	1537-1905....	895,735,000
Brazil	1691-1905....	720,902,000
Africa	1887-1905....	711,246,000
Mexico	1521-1905....	307,161,000
Canada	1858-1905....	237,202,000
Bolivia	1545-1905....	199,611,000
Peru	1533-1905....	119,389,000
British India	1884-1905....	115,116,000
Austro-Hungary	1493-1905....	70,242,000
Chile	1545-1905....	33,266,000

Total		\$10,244,520,000
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RUSSIA, AUSTRALIA, AND UNITED STATES

The above table is worthy of study and will be found to upset our previous ideas regarding the principal sources of our gold supply. Although Russia has long been known as an important source of the world's gold, few know that it ranks so high as to hold the

* J. P. Hutchens, "Total Gold Production." The Engineering and Mining Journal, March 31, 1906.

third position among the world's producers. The position of Australia is also very remarkable. Of course, it is well known that the Australian fields today are among the greatest gold yielders; but few are aware of the fact that since 1850, when gold was first discovered in Victoria, the Australian gold fields, with the aid of an amount of capital which sinks into complete insignificance when compared with the immense amount invested in the development of the American gold fields, have produced almost as much gold as the United States. In other words, the Australian output, in the past 55 years, has almost equalled that of the United States, during the past 113 years. It must be remembered, however, that gold mining in the United States was really not vigorously prosecuted until after the California discoveries, in 1849. Australia's great showing exhibits the immense possibilities it possesses as a future producer.

COLOMBIA AND BRAZIL

The positions of Colombia and Brazil are also interesting. Today the output of each country is only about \$2,000,000 per annum; but during the early days of Spanish rule their rich placer fields were vigorously worked with most profitable results. Their great yields were made over a century ago. In the future, when transportation facilities improve, both countries will again become prominent gold producing centers, as it is a well-established fact that both flanks of the Andes and its subsidiary ranges contain large areas of country carrying gold-bearing veins.

RECORD OUTPUT OF 1905

The world's gold production in 1905 amounted to \$379,635,413, and showed an increase of nearly \$30,-550,000 or 8% above the output in 1904. This increase was due chiefly to the large yields in the Transvaal, where special efforts are being made to make a good showing with coolie labor, and in the United States, where production was stimulated by the activity in the rich fields in Nevada and Alaska, and the large values obtained from the copper, lead and zinc smelters, in which gold is saved as a by-product. The total yield in 1905 was more than 5½ times larger than the yield in 1850, and nearly four times as great as that in 1885. The world's production, arranged according to continents, is as follows, the Russian output being included under Europe:

WORLD'S GOLD PRODUCTION 1903-5

	1903.	1904.	1905.
North America	\$105,106,409	\$111,192,642	\$118,176,774
Australasia	89,206,739	87,241,662	85,970,779
Africa	68,036,433	86,249,936	113,226,971
Europe	29,132,342	29,808,900	27,668,111
Asia	25,134,755	24,839,368	24,446,336
South America	11,348,805	9,255,745	10,069,942
Other Countries	1,500,000	1,500,000	76,500
Totals	\$329,465,483	\$350,088,253	\$379,635,413

GOLD MINING IN UNITED STATES

The United States output was greater in 1905 than in any former year. All the western mining fields were actively worked with gratifying results. Colorado, as usual, was the banner producer. The mines in Colo-

rado in 1905 produced 1,237,443 oz. of gold, valued at \$25,577,045, an increase in value of \$1,181,245 over the production in 1904. The Californian output ranked second, and was valued at \$19,168,045. In recent years, California has greatly benefited by improvements in hydraulicking methods of gold winning and by the introduction of gold dredges to re-work the old river placers. The establishment of several large, modern smelting works, which have lowered the treatment charges, and thus enabled owners of low grade ore mines to resume operations with satisfactory results, has also tended towards increased yields. In the north-western districts, which include Shasta, Trinity and Siskiyou counties, which were formerly gravel mining fields, quartz mining industries are rapidly increasing. Another factor, which has had an important bearing on the recent improvement in Californian mining conditions, has been the development of the rich gold fields along the southern border of Nevada. The old gold mining centers over the line in California attracted the attention of prospectors and adventurers who reopened old mines with important results. Today a number of valuable properties, covering a large area of ground in the mountainous and desert regions in Inyo county, are being opened up, and their prospects are such as to assure an appreciable increase in the California gold yield for some years.

Alaska's output of 708,700 oz. was valued at \$14,-650,100; an increase of \$5,345,900 as compared with 1904. The gold mining industries of Alaska are making rapid progress. Capital is flowing into the gold fields, new railroads are improving transportation, and

the erection of numerous new mills and smelters will provide such excellent facilities as to enable miners, in the next few years, to more than double their present annual yields. It is estimated that the gold output of Alaska in 1906 will exceed \$20,000,000, and that of the Dawson and Yukon will approach \$8,000,000.

Nevada, which formerly ranked high as a gold producing state, is rapidly coming to the front again.



GOLD DREDGE IN GUIANA*

During the past four years a large number of new camps have been discovered in Nye and Esmeralda counties, in the southwestern part of the State, which are developing well. In the Tonopah, Goldfield and Bullfrog districts many valuable mines have been de-

For the four cuts showing gold-producing methods in South America acknowledgment is made to the courtesy of the Engineering and Mining Journal, of New York.

veloped, and within the next two or three years, when milling and smelting facilities are provided, they will yield large returns, and will most probably enable Nevada to take rank as the greatest gold producer in America. Nevada produced 227,363 oz. of gold, valued at \$4,700,000, in 1905, and this year the yield will be considerably higher. In the past few weeks some of the leasees of claims at Goldfield have been daily raising ore valued as high as \$50,000.

CANADA AND MEXICO

Gold mining industries are developing rapidly in many foreign countries. In Canada, British Columbia and the Yukon are important gold producers. Many of the northwestern rivers like the Saskatchewan, Yukon, Quesnel and Frazier possess large areas of auriferous sand and gravel beds awaiting the development of the gold dredging industry. They will, doubtless, become producers within the next few years.

The progress of Mexico as a gold producer is astonishing. In 1905 the output amounted to 702,799 oz., valued at \$14,526,855, as compared with \$12,819,720, in 1904, and \$10,659,641, in 1903. The country is rapidly being developed by British and American capitalists who are building extensive railroad systems, and developing many new mining fields. As a consequence, we may expect a steady increase each year in the Mexican gold output.

SOUTH AMERICA

South America is still an important contributor to the world's supply; the total annual output being

about \$11,000,000. The chief producing centers today are Brazil, Chili and the three Guianas. The mining possibilities of South America are very great and there is little doubt that improved transportation facilities



DRILLING FOR WATER, SOUTH AMERICAN GOLD FIELDS

and the investment of capital in gold mining could, in a few years, place that country at the head of the gold producers.

RUSSIA

Russia also has good possibilities as a gold mining country. The annual production is now about \$22,000,000, but Siberia, the Urals and the mountainous country in the southeast districts in Asiatic Russia possess important auriferous areas only requiring the investment of capital to develop them into large gold fields.

ASIA

Asia has never been very remarkable for its gold fields, notwithstanding that the metal occurs over a large part of the continent and has been mined since the remotest times. The total annual yield is about



SLUICING GOLD, SOUTH AMERICA

\$24,000,000, to which British India contributes \$12,000,000 and China and Japan about \$4,500,000 each.

AFRICA

The principal gold mining districts in Africa are in the Transvaal, although British capitalists are developing valuable gold mines in Rhodesia, the Gold Coast and Egypt which, in early times, was an important gold mining country. The Transvaal gold mining indus-

tries are passing through a crisis at present which was brought on by the mineowners introducing indentured Chinese labor with the view of defeating the political ambitions of the white workers resident in the colony who are shortly to be given self government by England. Great efforts have been made to increase the gold yield by artificial means, but the value of South African mining shares has depreciated enormously, and they are today sold only with difficulty. No new mines are being developed by fresh capital, and it would be utterly impossible to float a new Transvaal gold mining company in England. This condition of affairs will continue until coolie labor is abolished and white labor takes its place. This change must inevitably be made, but the opposition of the mineowners is so keen that they will continue to avoid it until they have tried every possible expedient to evade it. This will prove very harmful to the colonies industries, and the gold production will not be materially increased for many years. The yield, during the statistical year ending June 30, 1906, was 5,202,944 oz. valued at \$90,-170,889, as compared with 4,322,577 oz. valued at \$88,-133,491 in 1905.

AUSTRALASIA

The gold-bearing areas of Australasia are beyond comparison greater than in any other country and, since the discovery of the Victorian placer fields in 1850, Australasia has been foremost among the world's gold producers.

In 1905, Australasia was the third largest gold producer, coming close to the United States, which took

second rank after Africa. The Australasian yield was valued at \$85,970,779. For the half year ending June, 1906, the yield was 1,923,679 oz. valued at \$39,763,445, as compared with 1,944,551 oz. valued at \$40,196,869 in the corresponding period in 1905. The total yield this year promises to show a decrease over that of last year. This, however, is not due to the exhaustion of



TRANSPORTATION METHODS ON SHALLOW STREAMS, SOUTH AMERICAN GOLD MINING DISTRICTS

the mines, but to well-known geological phenomena associated with the secondary enrichment of the gold veins above the water level, and the reduction in value of the ore below the water level.

Australasia is a remote, sparsely populated country, where it is difficult to finance new mining opera-

tions. Mining expansion there is dependent upon the caprices of the investment markets, which are largely swayed by the conditions of the pastoral industries. During the past few years the pastoral industries have been exceedingly prosperous, and local capitalists have chiefly devoted their attention to the further advance-



A SIBERIAN MINE

This shows well the nature of the country about the mines in the Government of Tomsk, Siberia. The workmen's and employee's quarters of the Bogum Darovanni mine are in the foreground. The first stamp mill of this mine was located at this point but was burned and is located about three miles down the gulch of the Federoski, shown in the above view.

ment of these industries, and the establishment of numerous branches of manufacturing. Mining investments have been neglected, and few new mines have been developed. As a consequence the gold production is dependent on the old mines. In accordance with the geological laws above alluded to the yields of the established mines gradually diminish with depth, and this

diminution is reflected in the total annual gold yield of the commonwealth and New Zealand.

In West Australia the mines are being operated at depths varying between 1,500 and 2,000 feet. Many of the mines were fabulously rich at the surface but



MODERN SIBERIAN GOLD MINE

This shows the Chilian mill and amalgamating tables of the Central mine, Mrs. O. E Iranitzka, owner, in the Marinsk District, Government of Tomsk,

below the water level settled down to steady producers of ore running from \$15 to \$50 per ton.

In Victoria some of the gold mines are worked at a depth of more than 3,000 feet; the deepest vertical gold working yet reached.

It will be seen, from the above statements, that to keep up the gold supply of any country it is necessary to annually develop new mines to balance the inevitable decrease in existing producers. While in Australia the wool and other pastoral industries are enjoying a period of great prosperity, it is useless to expect

any large investment of new capital in new mining operations and, for this reason, we may expect a slight decline in Australian gold production for the next few years. Whenever a drought, or other active cause, checks the prosperity of the pastoral industries mining investments will again attract capital, and Australia will then advance its gold production.

To a considerable extent, the reduction in the value of the ore is balanced by reductions in mining and metallurgical charges by means of improved processes. So that in mines where such a balance is obtained the operations remain profitable. Mining costs in Kalgoorlie, the principal gold field in West Australia, now average less than \$4 per ton, as compared with \$20 when the rich surface zone was being mined. Some of the large mines working on the Bendigo field, in Victoria, between 2,000 and 3,000 feet in depth, are regularly paying monthly dividends by mining and crushing ore assaying less than \$2 per ton.

WORLD'S SUPPLY OF GOLD INEXHAUSTIBLE

Many economists who essay to forecast the gold production of the future keep in view the rich, easily-worked placer fields and rich bonanza vein mining districts, and their conclusions are pessimistic or optimistic in almost exact ratio with the psychological temperament of the mining share markets with respect to gold mining investments at the time the forecasts are framed. They neglect to take into consideration the singular periodical fluctuations in the amount of gold mining investments and the intimate bearing of those fluctuations upon the annual gold yield.

The world's gold supply is absolutely inexhaustible, no matter what demands are made upon it. Hitherto the attention of miners has been entirely directed to comparatively rich, easily-worked deposits. But it has to be remembered that gold in small quantities occurs in enormous masses of rock throughout the world. Almost all volcanic rocks and the formations derived



BEGININGS OF A GOLD MINE

Prospectors have located a claim and have erected the mining monuments shown in the center of the photograph. The view is from Bullfrog, Nevada

from them, such as granite, serpentine and rhyolite, contain appreciable quantities of gold, and vast deposits of sedimentary rocks derived from such volcanic formations contain gold in concentrated form, and are today in some localities profitably worked. Profit is and always has been the incentive to gold production. Should there ever be need for working the volcanic and sedimentary rocks that are auriferous the means of profitably working them will be found.

GOLD FROM SEA AND HEAVENS

Experiments have shown that gold is regularly falling to the earth, in association with cosmic dust, and day and night settles all over the land and sea. Some of this gold, when concentrated by wind and water, or dissolved by acid surface waters and redeposited, in a more concentrated form, is recoverable.

The waters of the sea, also, are auriferous, and there can be little doubt that, if ever in the remote future there should be extraordinary demand for gold, means could be found for profitably reducing the gold in the seawater.

The area of the sea-bed is much larger than that of the land. Its composition is similar in every respect with that of the land. It is composed of mountains, plains and plateaus; of igneous, metamorphic and sedimentary rocks which contain great areas of gold-bearing and other mineral veins. Only in a few instances, however, where the submarine gold fields are close to the land will it be possible to work them, as the submarine coal fields are now worked. But those oceanic gold fields on which the veins outcrop at the surface are subject to constant attrition by the waves. This causes the shedding of gold, which is concentrated by the sea and washed ashore. Gold deposits thus formed exist in many countries, and they are remarkable in that they are renewed or enriched by almost every storm that passes over them. These deposits are known by various names, but the term auriferous beach sand sufficiently describes them. They occur in the Pacific beaches, from Alaska to Terra del Fuego, and

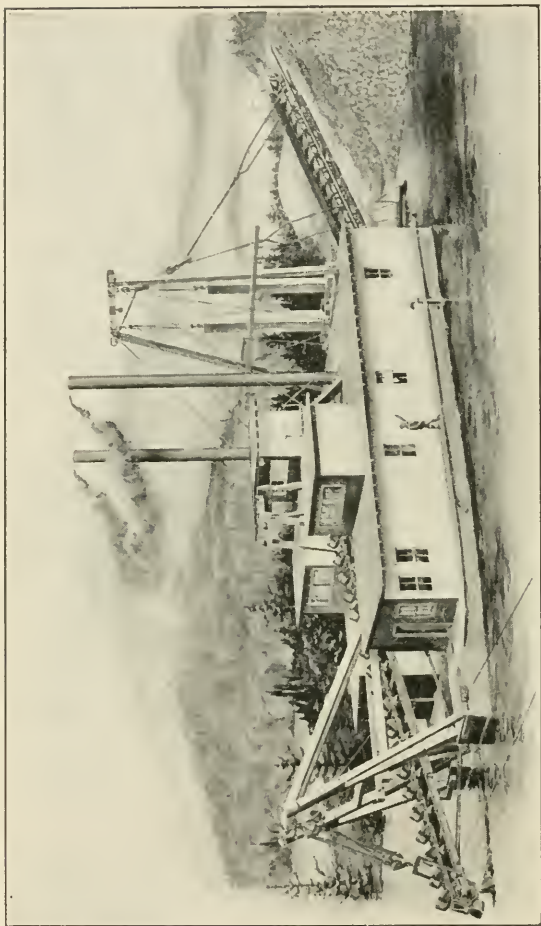
throughout the coasts of Australia and New Zealand, where they have long been worked with profitable results. The gold output from the gold-bearing beaches at Nome, Alaska, this year is expected to reach \$4,000,000. The coast between Cape Nome and Point Rodney, for a distance of more than 20 miles, is being worked for gold by hundreds of men. The beach is, in places, auriferous for a width 2,000 feet inland from the tide level, and to a depth up to 50 feet. From the western base of Cape Nome there is a series of gravelly sea-beaches extending inland several miles, which contain gold and are, in places, being worked today. These marine deposits yielded gold to the value of \$2,200,000 in 1903, \$2,185,000 in 1904, and \$2,850,000 in 1905.

GOLD IN SANDS AND CLAYS

Over large areas of the earth's surface there are immense deposits of auriferous sands and clays. These are chiefly in arid regions. In many countries they are profitably worked by dry-blowing processes. But experiments in Australia have shown that much of the gold can be extracted from them by a special adaptation of gold dredging known as the paddocking process. These deposits are formed by the erosion of auriferous rock formations, and the concentration of the gold by the action of wind and rain, just as the gold in river sands is formed by aqueous erosion and concentration.

GOLD DREDGES

The operating of gold-saving dredges on rivers has, in recent years, been an important factor in increasing the world's annual gold output. Gold dredges



LATEST TYPE OF GOLD DREDGE

The gravel is excavated by the buckets of the ladder dredge and carried to the dump hopper at the rate of about 15 buckets per minute. The coarser materials are removed in a revolving screen and the finer material which passes through the screen is carried along a sluice box over riffles containing quicksilver. A steam dredge is shown in the photograph; electric operation from a steam plant on the shore is used in some cases, its advantages being in the handling of fuel, in more direct use of power and in allowing room on the dredge for gold-saving devices

are chiefly of two types—bucket and pump dredges. A bucket dredge consists of a barge fitted at the bow with a digging apparatus consisting of an endless chain of buckets of great weight and capacity that will cut and dig, not only the auriferous gravel, but also the bed rock in which some of the gold may be intrenched; a revolving or shaking screen, located amidships, which sizes and washes the dredged material; gold saving devices; an elevator and stacker at the stern for discharging the waste; pumps for supplying water for washing the gravel and concentrating the gold from it, and winches for working the dredge by means of ropes and keeping the dredge in the position most suitable for working. Power is supplied by steam, electricity or hydraulic pressure. Some of the largest machines, which resemble in general appearance the bucket dredges employed in harbor works, have a capacity of 200,000 cubic yards of sand per month, when operating in alluvial soil. They are operated at a cost varying from $2\frac{1}{2}$ to 15 cents per cubic yard, depending upon the local costs of labor and supplies and nature of ground worked. A modern gold dredge costs up to \$50,000 and requires a crew of 4 to 6 men to operate it.

The pump dredge resembles the centrifugal dredges used in deepening harbors, and although not used very largely in gold-winning in America, is very successfully applied in such work in many places in Australia.

The application of gold dredging is already extensive; but it still has many possibilities. It is a New Zealand invention, and was at first applied to deep.

sandy river beds. It was afterwards extended to operations on the ocean bed adjacent to the coast, and to auriferous coast beaches. In Australia it was adapted to the working of flats adjacent to rivers, benches or terraces back from the coast, and paradoxical though it at first appears, to inland arid sand plains.

Paddock Dredging

The dredging of arid regions for gold is carried out by digging a paddock, usually about half acre in extent, in which a dredge is built. Water is pumped into the paddock from artesian wells, or other sources, to float the dredge. As the dredge works away the ground to the required depth and width, it fills in behind with the waste removed from the front with little loss of water. In some recent Australian plants the dredge is not floated at all. It is simply placed in position and moved about by mechanical means. Water is required only for filling a small pit in which the bucket diggers work, for washing the dredged material, and for concentrating the gold in the sluices. The water is saved and used over again.

As an instance of the profitableness of gold dredging in suitable localities, it may be stated that the Electric Dredging Company's No. 1 dredge, working on a New Zealand river, obtained 1,273 oz. of gold, valued at \$26,313, in five days' actual dredging, and this record has been approached by many other machines.

IMPROVED METHODS

Improvements in mining methods and metallurgical processes are continually being made with most

beneficial results in regard to the reduction in the cost of gold production. At present, attention is directed mainly to methods of ore extraction without the use of timber for supporting the sides and roof of the excavated ground. In many mining localities large quantities of timber were required for such work. Recent improvements in mining have enabled many mines to almost do away with timber for underground supports, as the waste is filled into the portion from which the ore is removed. When the mining operations do not supply sufficient waste rock for the purpose of filling the excavated ground, waste is sent down from the surface.

In mines working wide ore bodies, the ore is very cheaply mined by means of steam shovels working downward from the surface. This system has been pursued for many years in the Alaska-Treadwell mine, Alaska, and has recently been most successfully adopted in the famous Mount Morgan mine, Queensland.

The most noticeable features in recent methods of gold ore treatment have been fine crushing in tube or ball mills, and the leaching of the gold from the slime by the cyanide process. Much attention has also been given to improvements in pyretic smelting processes which have greatly reduced the cost of treating sulphide ore.

Wonderful improvements have also been introduced into metallurgical processes from which gold is obtained as a by-product. The most prominent of these are the new processes of treating the auriferous

zinc ores of the Broken Hill field, by magnetic, and oil and gas concentration.

A GOLD FAMINE IMPOSSIBLE

The principal points the writer desired to emphasize were that the known gold deposits of the world are ample to supply all the demands likely to be made upon them. There will never be any likelihood of gold famines occurring from lack of gold deposits. As the rich surface deposits are being worked out, improvements in mining and metallurgical processes are enabling poorer and poorer deposits to be worked. The annual output of the world will continue steadily to increase; but fluctuations in the yields of particular countries, or mining districts, will vary, as heretofore, in sympathy with the temper, or psychological environment, of the mining markets in respect to gold mining investments, and the demand for gold.

An exact estimate of the annual production cannot be formed owing to the uncertainty of several important factors. The estimate of the director of the mints, referred to above, is undoubtedly too low. Within the next year or two the annual output will almost certainly exceed \$400,000,000; thereafter a progressive increase each year may confidently be expected.

The Increasing Supply of Gold

Its Effect Upon (a) Prices, (b) Wages, (c) Rents, (d) Interest, (e) Industry, (f) Securities, (g) Business Ethics, (h) Politics (i) Society

The first thirteen articles on this subject were published as part of a symposium in the first (December, 1905), number of Moody's Magazine. They are republished here without change. The following tables and memoranda as to gold, prices, wages and interest rates are also republished from the introduction to the symposium. They have, however, been revised to bring them to date.

MEMORANDA AS TO GOLD, PRICES, WAGES AND INTEREST

The following tables of statistics of prices, wages, interest rates and gold are given mainly for purposes of comparison. All such statistics are necessarily inaccurate and unreliable. No two authorities agree. Frequently they differ radically.

Statistics of Gold, Money, Interest Rates,

Year (Calendar)	World's Annual Output of Gold*	World's Visible Supply of Gold†		Per Capita Circula- tion of Money in U. S. June 30	Interest Rates on 60-day 2-name paper‡ Yearly Average in New York	PRICES (Wholesale)	
						By Index Numbers	
						Aldrich	Report
	Coinage Value	Coinage Value Dec. 31	% In- crease			Gold	Cur rency
						Jan. 1	Jan. 1
1850	\$ 44,500,000	\$1,606,400,000		12.02	7.2	89.2	89.2
1851	67,600,000	1,669,440,000	3.9	13.76	8.3	98.6	98.6
1852	132,800,000	1,732,360,000	3.7	14.56	7.3	97.9	97.9
1853	155,500,000	1,795,160,000	3.6	15.70	10.1	105.0	105.0
1854	127,500,000	1,857,850,000	3.5	16.10	12.5	105.0	105.0
1855	135,100,000	1,920,390,000	3.4	15.34	9.3	109.2	109.2
1856	134,000,000	1,983,600,000	3.3	15.16	9.9	112.3	112.3
1857	134,000,000	2,046,680,000	3.2	15.81	10.4	114.0	114.0
1858	133,000,000	2,109,640,000	3.0	13.74	6.7	113.2	113.2
1859	130,000,000	2,172,470,000	2.9	14.35	7.2	102.9	102.9
1860	127,000,000	2,235,480,000	2.9	13.85	7.7	100.0	100.0
1861	122,000,000	2,292,210,000	2.4	13.98	6.6	94.1	94.1
1862	119,000,000	2,349,130,000	2.4	10.23	5.4	101.6	104.1
1863	119,000,000	2,405,940,000	2.4	17.84	5.8	91.1	132.2
1864	122,000,000	2,462,630,000	2.3	19.67	8.0	110.7	172.1
1865	126,000,000	2,519,220,000	2.3	20.57	8.2	107.4	232.2
1866	127,000,000	2,589,010,000	2.3	18.99	6.8	134.0	187.7
1867	127,000,000	2,638,660,000	2.3	18.28	7.2	132.2	165.8
1868	126,000,000	2,698,200,000	2.2	18.39	7.3	125.6	173.9
1869	125,000,000	2,768,410,000	2.6	17.60	9.1	112.3	152.3
1870	123,000,000	2,827,690,000	2.1	17.50	7.2	119.0	144.4
1871	119,000,000	2,879,830,000	1.8	18.10	6.1	122.9	136.1
1872	113,000,000	2,931,970,000	1.8	18.19	8.0	121.4	132.4
1873	112,000,000	2,974,220,000	1.4	18.04	10.3	114.5	129.0
1874	90,750,000	3,013,660,000	1.6	18.13	6.0	116.6	129.9
1875	97,500,000	3,056,400,000	1.4	17.16	5.5	114.6	128.9
1876	103,700,000	3,102,150,000	1.5	16.12	5.2	108.7	122.6
1877	113,947,200	3,152,933,000	1.6	15.58	5.2	107.0	113.6
1878	119,092,800	3,206,180,000	1.6	15.32	4.8	103.2	104.6
1879	108,778,800	3,254,170,000	1.5	16.75	5.0	95.0	95.0
1880	106,436,800	3,300,890,000	1.4	19.41	5.2	104.9	104.9
1881	103,023,100	3,345,820,000	1.3	21.71	5.2	108.4	108.4
1882	101,996,600	3,400,140,000	1.6	22.37	5.7	109.1	109.1
1883	95,392,000	3,441,050,000	1.2	22.91	5.5	106.6	106.6
1884	101,729,600	3,485,040,000	1.2	22.65	5.2	102.6	102.6

*Figures for 1850 to 1854 from U. S. Mint Report for 1880; 1855 to 1873 from the "Mineral Industry," by Charles P. Rothwell; since 1873 by Director of Mint.

†Estimates of Moody's Magazine previous to 1892; and for 1905 and 1906; 1892 to 1904 by Director of Mint.

‡From "Appreciation and Interest," by Prof. Irving Fisher, for 1895 and previous years; since then compiled from *Financial Chronicle*.

Prices, Wages and Relative Value of Gold.

PRICES (Wholesale)		WAGES			Appreciation or Depreciation of Gold|| as tested by			Year (Calendar)
By Index Numbers		By Index Numbers						
Labor Bureau	Dun's§	Aldrich Gold	Report Cur- rency	Labor Bureau	Prices	Wages	Prices and Wages	
Av. for Year	Jan. 1	Jan. 1	Jan. 1	Av. for Year				
		90.9	90.9		112.1	110.0	111.0	1850
		91.1	91.1		101.4	109.8	105.4	1851
		91.8	91.8		102.1	108.9	105.4	1852
		93.2	93.2		95.2	107.3	100.9	1853
		95.8	95.8		95.2	104.4	99.6	1854
		97.5	97.5		91.6	102.6	96.8	1855
		98.0	98.0		89.0	102.0	95.1	1856
		99.2	99.2		87.7	100.8	98.8	1857
		97.9	97.9		88.3	102.1	94.7	1858
		99.7	99.7		97.2	100.3	98.7	1859
		100.0	100.0		100.0	100.0	100.0	1860
		100.7	100.7		106.3	99.3	102.7	1861
		101.2	103.7		98.4	98.8	98.6	1862
		81.9	118.8		109.8	122.1	115.6	1863
		86.2	134.0		90.3	116.0	101.6	1864
		68.7	148.6		93.1	145.5	113.6	1865
		111.1	155.6		74.6	90.0	81.6	1866
		121.8	164.0		81.2	82.1	81.6	1867
		119.1	164.9		79.6	84.0	81.7	1868
		123.5	167.4		89.0	80.9	84.8	1869
		136.9	167.1		84.0	73.0	78.2	1870
		150.3	166.4		81.4	66.5	73.2	1871
		153.2	167.1		82.4	65.3	72.8	1872
		147.4	166.1		87.3	67.8	76.4	1873
		145.9	162.5		85.8	68.5	76.2	1874
		140.4	158.0		87.3	71.2	78.4	1875
		134.2	151.4		92.0	74.5	82.3	1876
		135.4	143.8		93.5	73.9	82.5	1877
		139.0	140.9		96.9	71.9	82.6	1878
		139.4	139.4		105.3	71.8	85.3	1879
		143.0	143.0		95.3	67.9	80.7	1880
		150.7	150.7		92.2	66.4	77.2	1881
		152.9	152.9		91.7	65.4	76.3	1882
		159.2	159.2		93.8	62.8	75.2	1883
		155.1	155.1		97.5	64.5	77.6	1884

§Average prices of 350 articles, weighted according to consumption of each article.

||Based upon wages and prices in gold, as in the Aldrich Report for 1891 and previous years; since 1891 on Dun's prices and Labor Bureau's wages.

(Continued in following pages)

Statistics of Gold, Money, Interest Rates,

(CONTINUED FROM

Year (Calendar)	World's Annual Output of Gold*	World's Visible Supply of Gold†		Per Capita Circula- tion of Money in U. S. June 30	Interest Rates on 60-day 2-name paper‡	PRICES (Wholesale)			
						By Index Numbers			
		Coinage Value	Coinage Value Dec. 31			% In- crease	Yearly Average in New York	Aldrich	Report
								Gold	Curren- cy
						Jan. 1	Jan. 1		
1885	\$108,435,600	\$3,532,309,000	1.3	23.02	4.1	93.3	93.3		
1886	106,163,900	3,578,340,000	1.3	21.82	4.7	93.4	93.4		
1887	105,774,900	3,624,080,000	1.3	22.45	5.7	94.5	94.5		
1888	110,196,900	3,671,950,000	1.3	22.88	4.9	96.2	96.2		
1889	123,489,200	3,726,371,000	1.4	22.52	4.8	98.5	98.5		
1890	118,848,700	3,778,350,000	1.3	22.82	6.0	93.7	93.7		
1891	130,650,000	3,836,230,000	1.5	23.42	5.7	94.4	94.4		
1892	146,651,500	3,901,900,000	1.7	24.56	4.3				
1893	157,494,800	3,965,900,000	1.7	24.03	7.1				
1894	181,175,600	4,086,800,000	3.0	24.52	3.4				
1895	198,763,600	4,143,700,000	1.4	23.20	3.8				
1896	202,251,600	4,359,600,000	5.2	21.41	5.8				
1897	236,073,700	4,594,900,000	5.4	22.87	3.7				
1898	286,879,700	4,614,600,000	.4	25.15	3.8				
1899	306,724,100	4,841,000,000	4.9	25.58	4.1				
1900	254,576,300	4,906,700,000	3.4	26.94	4.4				
1901	262,492,900	5,174,400,000	4.0	27.98	4.3				
1902	296,548,800	5,382,600,000	4.0	28.43	4.9				
1903	325,527,200	5,628,200,000	4.5	29.42	5.5				
1904	346,892,200	5,987,100,000	6.4	30.77	4.2				
1905	379,635,413	6,300,000,000	5.6	31.19	4.4				
1906	400,000,000	6,620,000,000		32.42	5.7*				
1906	December 1								

*Figures for 1850 to 1854 from U. S. Mint Report for 1880; 1855 to 1873 from the "Mineral Industry," by Charles P. Rothwell; since 1873 by Director of Mint.

†Estimates of Moody's Magazine previous to 1892; and for 1905 and 1906; 1892 to 1904 by Director of Mint.

‡From "Appreciation and Interest," by Prof. Irving Fisher, for 1895 and previous years; since then compiled from *Financial Chronicle*.

*To December 6th.

Prices, Wages and Relative Value of Gold.

PRECEDING PAGES.

PRICES (Wholesale)		WAGES			Appreciation or Depreciation of Gold|| as tested by			Year (Calendar)
By Index Numbers		By Index Numbers						
Labor Bureau	Dun's§	Aldrich Gold	Report Cur- rency	Labor Bureau	Prices	Wages	Prices and Wages	
Av. for Year	Jan. 1	Jan. 1	Jan. 1	Av. for Year				
	\$96,465	155.9	155.9		107.2	64.1	80.3	
		155.8	155.8		107.1	64.2	80.3	
		156.6	156.6		105.8	63.9	79.7	
	99,902	157.9	157.9		103.9	63.3	78.7	
	99,076	162.9	162.9		101.5	61.4	76.5	
112.9	90,191	168.2	168.2	101.0	106.7	59.5	76.4	
111.7	98,247	168.6	168.6	100.8	105.9	59.3	76.0	
106.1	89,822			101.3	111.3	59.1	77.2	
105.6	94,155			101.2	106.2	59.2	76.0	
96.1	86,032			97.7	115.0	61.3	80.2	
93.6	80,992			98.4	112.3	60.8	81.5	
90.4	77,780			99.5	128.5	60.2	82.0	
89.7	75,502			99.2	132.4	60.4	83.0	
93.4	79,940			99.9	125.1	60.0	81.0	
101.7	80,423			101.2	124.3	59.2	80.2	
110.5	95,295			104.1	104.9	57.5	74.4	
108.5	95,668			105.9	104.5	56.6	74.1	
112.9	101,587			109.2	98.4	54.8	70.4	
113.6	100,356			112.3	99.6	53.3	69.5	
113.0	100,142			112.2	99.8	53.4	69.6	
115.9	100,318			114.0	99.7	51.6	68.7	
	104,464				95.7			
(Dec. 1)	108,172							

§Average prices of 350 articles, weighted according to consumption of each article.

||Based upon wages and prices in gold, as in the Aldrich Report for 1891 and previous years; since 1891 on Dun's prices and Labor Bureau's wages.

Statistics of Prices, Wages, Interest Rates and Gold Output and Supply.

Year	World's Stock of Gold in Sight (Coinage Value)	Prices by Index		Wages by Index Numbers		\$Int. Rates 60-day Paper 2-name	Coinage value	Period
		Aldrich Report Jan. 1	Dun Jan. 1	Labor Bureau Jan. 1	Aldrich Jan. 1			
1800						From 2% to 4% in London except in panic years 1826 and 1839	\$ 11,815,200 (Av.)	1801—1810
1820							7,606,300	1811—1820
1830							9,447,900	1821—1830
1848		88.3			91.6		13,484,100	1831—1840
1855	* \$1,606,400,000	89.2			90.9		36,392,800	1841—1850
1865	* 1,920,350,000	109.2			97.5		132,513,200	1851—1855
1866	* 2,235,480,000	100.0			100.0		134,083,000	1856—1860
1865	* 2,519,220,000	107.4			68.7		122,989,000	1861—1865
1870	* 2,827,690,000	119.0			136.9		129,614,000	1866—1870
1872	* 2,931,970,000	121.4			153.2		115,577,000	1871—1872
1873	* 2,974,220,000	114.5			147.4		96,200,000	1873
1880	* 3,300,890,000	104.9			143.0		106,436,800	1880
1885	* 3,552,309,000	93.3			155.9		108,435,600	1885
1890	* 3,778,350,000	98.5			168.2		118,848,700	1890
1895	† 4,143,700,000			112.9			198,763,600	1895
1900	† 4,906,700,000			93.6			254,576,300	1900
1904	† 5,987,100,000			110.5			346,892,200	1904
1905	* 6,300,000,000			113.0			379,635,413	1905
1906	* 6,620,000,000			115.9			400,000,000	1906

‡December 1.

*Estimates of Moody's Magazine.

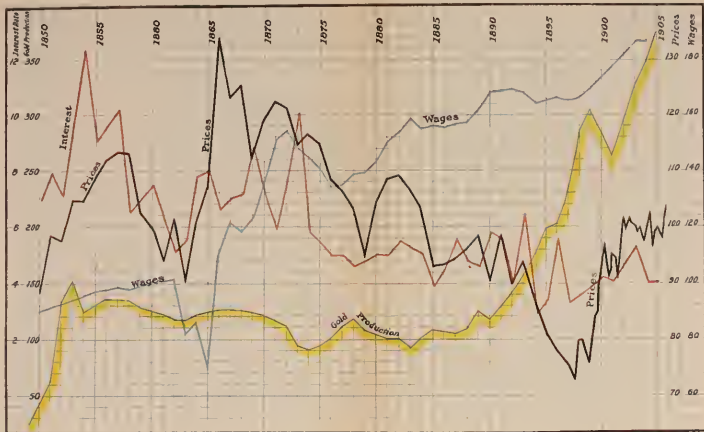
†Estimates of Director of the Mint.

§From "Appreciation and Interest," by Prof. Irving Fisher, for years 1850 to 1895.

‡From estimates by Dr. Adolph Soetbeer previous to 1872. Since 1872 the estimates are those of the Bureau of the Mint.

CHART I.

Showing Relation Between World's Gold Production and Prices, Wages and Interest in United States
(Based upon statistics on accompanying pages. Charts have not been revised to 1906 as have statistics.)



Prices and Wages from Aldrich (Senate) Report previous to 1889 or 1890. After 1889 Prices are from Dun's. After 1890 Wages from Labor Bureau Report

Mulhall estimates the world's stock of gold* approximately as follows:

GOLD, MILLIONS DOLLARS AT \$4.86 TO THE POUND STERLING
(000 or 000,000 Omitted)

A. D.	Coined		Uncoined		Total	
1600	£ 29	\$ 140,940	£ 87	\$ 422,820	£ 116	\$ 563,760
1700	75	364,500	108	524,880	183	889,380
1800	126	612,360	256	1,244,160	382	1,856,520
1848	157	763,020	343	1,666,980	500	2,430,000
1880	735	3,572,100	357	1,735,020	1,092	5,307,120
1890	790	3,839,400	445	2,162,760	1,235	6,002,100
1894		3,973,535		2,354,184		6,327,720

Spallart estimated the actual gold coin in various countries in 1855 at £790 millions sterling, or \$3,839,400,000.

Dr. Adolph Soetbeer in 1886 estimated the total monetary supply of gold at the close of 1885 at 13,364,000,000 marks, or \$3,180,632,000.

The Monetary Commission in its report in 1898 said:

"A conservative estimate gives the total available stock of the world in 1850 at about \$2,000,000,000. In the last forty-seven years (1851-1897) gold has been produced to the amount of over \$6,000,000,000, so that, even allowing a deduction of \$2,000,000,000 for loss by shipwreck, abrasion, use in the arts, etc., the total supply is now more than three times that in 1850."

The Director of the Mint estimates the world's stock of gold in 1873 at \$1,209,800,000 and in 1892 at \$3,901,900,000. He gives the world's product of gold from 1873 to 1892 as \$2,092,527,600. That these figures

* Dictionary of Statistics, 1892 and 1896.

are worthless for the purpose of comparison is evident from the fact that the total output of gold from 1873 to 1893, added to the world's stock in 1873, fell \$599,572 short of the stock in 1892. And yet it is certain that about half of the gold produced during the period was used in the arts or lost.*

The reports of the Director of the Mint contain estimates of the world's stock of gold for 1892 and for each year since. These estimates are based mainly upon information received from our representatives in foreign countries. They include only the gold held by banks and public treasuries and that "in circulation"—an indefinite term. The gold now above ground and available for monetary purposes is probably 30 to 40% greater than the amount in sight. We can, however, deal only with the visible supply. Undoubtedly a much larger proportion of available gold is now coined and visible than in 1873 or 1850.

While it is, perhaps, true that the available stock of gold in 1850 was above \$2,000,000,000, it is probable that the amount then visible was much less than \$2,000,000,000.

Realizing the necessity of obtaining figures for comparison purposes, Moody's Magazine has, after

*Mr. George E. Roberts, Director of the Mint, in a letter to the Editor of Moody's Magazine, says of this inconsistency:

"These estimates were made before my time, but permit me to make an explanation concerning them. When the estimate for 1873 was made, it was exceedingly difficult to obtain figures and the table contains only thirteen countries. When the table for 1893 was made more data was available and that table contains 31 countries. Both tables were confessedly incomplete, but contained all that could be gathered at the time they were compiled. The tables for even later years show, when compared, inconsistencies, but each table is made up from information obtained through inquiries made direct to the foreign governments."

considering all these various estimates, adopted an arbitrary method of making estimates for years previous to 1892, which, it is believed, produces fairly accurate results. Adopting the estimates of the Director of the Mint for the years 1892 to 1903, inclusive, it has taken the estimate for 1892 as a base and has made estimates for previous years on the supposition that one-half of the yearly output of gold was used for monetary purposes and that one-fifth of 1% of all gold in existence was each year lost in some way to the monetary world. In this way it arrives at the estimate of \$1,606,400,000 as the visible stock of gold in 1850. It is believed that this amount was as visible and readily available for monetary purposes in 1850, as was the \$3,901,900,000 sighted by our Treasury in 1892, or the \$5,628,200,000 found when the world's stock of gold was taken in 1903.

From these statistics we observe that from 1850 to 1855 the world's supply of gold increased about 20%, or an average of nearly 4% a year; that the annual yield of gold in 1855 was more than three times what it was in 1850; that prices* were 22% higher in 1855 than in 1850; that wages were 7.3% higher in 1855 than in 1850; that interest rates were 2.1 points higher in 1855 than in 1850.

The output of gold continued heavy until 1860 and prices, wages and interest remained high.

* The statistics of prices and wages quoted on this and the following page, as well as those in the big tables on pages 76-80 are for the United States only. Similar statistics for other countries, although believed to be less accurate, show the same general result.

Passing over the period of the Civil War and the panic of 1873, we see that from 1873 to 1890 the annual output of gold averaged but little more than \$100,000,000, and the yearly increments to the monetary supply averaged but about $1\frac{1}{2}\%$. Prices and interest tended downward, while wages rose somewhat. Although the production of gold increased greatly from 1890 to 1895, yet the yearly increment added to the supply amounted to less than 2%, and prices, wages and interest rates declined.

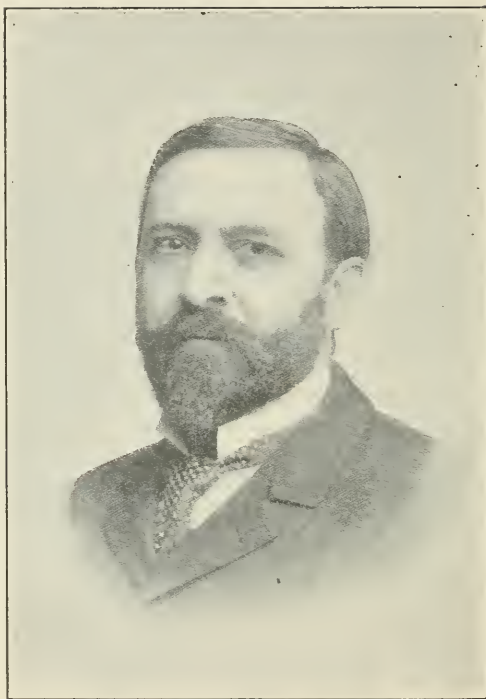
From 1895 to 1900 the gold output averaged \$257,000,000 a year and the world's stock of monetary gold increased 3.8% per year. Prices rose 17 or 18%; wages nearly 6% and interest rates six-tenths of a point.

From 1900 to 1906 the gold output averaged \$334,000,000; the world's stock of gold increased 35%, or an average of about 4.9% a year. Prices rose 10%, wages over 9% and interest rates 1.3 points.

Comparing prices with the per capita circulation of money we do not find that similarity of relation which the quantity theory of money would lead us to expect. While the quantity of money is now more than twice what it was from 1850 to 1860, prices are no higher now than then. Prices are about the same now as in 1862, although there are three times as many dollars per capita now as then. Since 1897 prices have risen about 40% while the per capita quantity of money has increased about 42%. It should, however, be noted that because of improved methods of production the trend of prices should be downward, particularly when periods of 20 or more years are considered.

Comparing the purchasing power of gold at different periods we see that a dollar now will buy about the same quantity of goods as in 1884 or in 1859, much less than from 1885 to 1901 and more than from 1864 to 1884, omitting the exceptional year 1879. Measured by wages the purchasing power of a dollar is now only half what it was in 1852 or 1853 and two-thirds what it was in 1869.

This means that nominal wages are now twice what they were in the fifties, and 50% higher than in the years from 1866 to 1870. Measured by both prices and wages the dollar will now purchase less than 70% of what it would in 1860 or '64, only four-fifths as much as in 1869 or 1879 and only five-sixths as much as in 1896. That is, measured by prices, gold has depreciated 30% since 1896, and, measured by both prices and wages, gold has depreciated 16% since 1896. It is evident, then, that the appreciating dollar which caused so much trouble in 1896, is a thing of the past. The robber dollar of today is, according to Mr. Bryan's theories, stealthily extracting money from the pockets of the rich creditors and giving it to the poor debtors.



MAURICE L. MUHLEMAN

Ex-Deputy Assistant Treasurer of the United States

Gold Supply Not too Great

By MAURICE L. MUHLEMAN

BEFORE proceeding to the consideration of the question of the influence of the rapidly increasing gold supply, it is proper to say that the table submitted, presenting the volume of monetary gold for the purpose of comparison with the fluctuation of prices, wages and interest rates, is unsatisfactory, for the reason that it limits the statement of the supply of money to gold, whereas silver, certainly for the period prior to 1873, and in a diminishing degree only since that date, was endowed with full money functions; hence if the volume of money is an important factor, the deductions from the table will in all probability be erroneous. The same may be said respecting the omission to include paper representatives of money, the use of which unquestionably potentially influences the conditions that cause price fluctuations. Moreover the volume of gold of the entire world, is compared with prices, wages and interest rates for the United States alone; it is not only conceivable, but demonstrable, that circumstances influencing only the United States, have been potential in causing fluctuations there, in very large measure irrespective of the supply of gold in the rest of the world.

Coming now to the specific topic for discussion, it is obvious that, as gold has been made the chief, and in the most important states the sole, medium of exchange and measure of values, a very marked change in prices, wages and interest may be looked for within a decade, unless the additional supply is offset by new demands. Other channels for the employment of the surplus of gold have been or will be suggested as likely to avert a radical disturbance in the markets; I confine myself to the one of reserves.

Regarding the adaptation and adjustment of our artificial or conventional methods to the changing natural conditions as a primary obligation of the civilized state, no utilization of the added gold supply to the promotion of the well-being of the race would be more rational than its employment in fortifying the reserves of financial institutions. No one who has given the subject more than merely superficial consideration will question the assertion that such strengthening is necessary if we would protect the credit structure adequately against the periodic dangers to which it is exposed; dangers which so frequently bring about disasters, the effects of which are felt for a decade, during which a very substantial portion of the race is subjected to misery, inevitably retarding the progress of civilization.

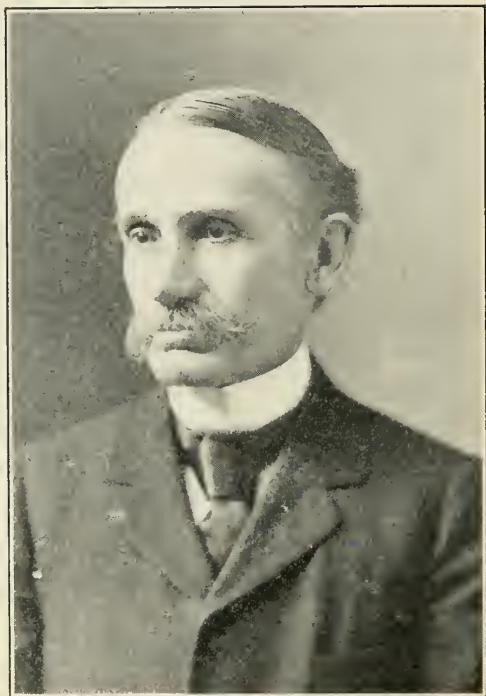
We are informed by statisticians that the volume of "uncovered paper money" is approximately \$3,500,000,000; we know that a considerable number of states are struggling with a depreciated paper standard. Moreover, it is well known that in estimating the uncovered paper volume, the specie in bank is all used to

offset note liabilities, leaving nothing against deposit or other credit liabilities; and a substantial part of the covering specie consists of silver. Here, then, is a broad field for the employment of the increasing gold product, sufficient to absorb the available output for a decade or more, which governments should recognize.

To illustrate concretely: In the United States we should have some 200 millions more of gold in place of our "greenbacks," 150 millions as a reserve against our silver issues; our banks should actually hold their prescribed reserves instead of being permitted to loan them out in part, which would require a further provision of say 200 millions; our trust companies are notoriously deficient in this respect and should be called upon to fortify themselves, which would give room for a further 200 millions. In London the joint stock banks actually carry such insignificant cash reserves against their 2300 millions of deposits, that there is an almost continuous protest against the dangerous practice; there a very large amount of gold could and should be gathered to assure stability which today exists largely only in the imagination, and only fortuitous circumstances avert trouble. At the moment there comes to hand another protest from the London Statist against this disregard of conservative regulations, instancing the present stringency there as a result of the practice.

It is not necessary to furnish a complete catalogue of the illy-fortified financial institutions; those cited prove the need and this is sufficiently important to merit the persistent attention of the best thought of the

day in governmental and financial circles. It may have been excusable in the period of slender gold output to permit reserves to shrink; that excuse is now no longer permissible; and while there are no doubt other channels in which the extraordinary supply of yellow metal can be used, none would so readily prevent inordinate market fluctuations, at the same time tending to avert the disasters following inadequate reserves, which so frequently interfere with the steady progress in our economic evolution.



JOHN B. CLARK

Professor of Political Economy, Columbia University

Money, Interest Rates and Prosperity

By PROF. JOHN B. CLARK

HOW many mistakes we should avoid and how many perplexing tangles we should straighten, if only we could see clearly how money acts in various connections. Interest, business profits, wages and prices all seem to depend on the supply of money, and it is instinctive to conclude that the more there is of it the better off every one is. Quite natural is it to think that, if the volume of the currency were to grow forever larger and larger and if this growth were to outstrip the increase of business to be done by means of it, so that prices would rise and continue rising to the end of time, we should have an ideal condition for business, and, in so far as business can ensure it, for general happiness.

Let us see what would follow such a permanent increase in the volume of currency. At the outset of the movement producers would get a profit in consequence of it. Men who borrow money, buy goods and sell them would be able to get higher prices for them than those which prevailed at the time of the purchase, and this would signify a gain in addition to the regular gain that comes from commercial dealing. If I buy goods, as a rule, at a wholesale rate, that is 20% less than the retail rate, I can make this amount when prices are stable, and it is clear that I can make more if they rise. If by the time I sell the goods they have

gone up 5% in value, I make 25% instead of 20%. I am "doing business in a rising market" and every merchant knows what that means. If the rise is a sudden one and if nothing happens that will take the extra profit from me, I am a real gainer.

In the long run something will happen that will neutralize my especial profit. The case supposed assumes that I borrow the money which buys the goods and in this fact lies my profit. I can sell the goods for such a price that my debt will be easily paid. With prices unchanging I could invest a thousand dollars in goods, sell them for eleven hundred, pocket the one hundred as a gross profit and pay my loan with what I have left. With prices rising I can pay the debt and have more than a hundred dollars left. If the goods are worth at the time of sale eleven hundred and fifty dollars, the extra fifty constitutes a special gain due to the rising prices.

This gain is made at the cost of the man who loaned the money. I shall pay him the thousand dollars that I owe, but it will have lost some of its purchasing power. He can himself get less in the way of goods, land, or what not than he could have bought with the same sum at the time he made the loan. He has suffered a real loss on the principal of his loan and it may even sweep away all his interest. What is more likely is that it will scale down his returns without entirely destroying them. He may have charged me 5% for the loan and the prices of all manner of real goods may have gone up about 2%; and if that is so, he has lost about 2% through the shrunken value of the principal of his loan. His gain from interest is

reduced to 3%. If real capital is earning 5% all the while, he will have to make new loans at 7% in order to repay himself for the shrinkage in the purchasing power of the principal of his loans and save 5% as net interest.

This he will seek to do and he will be able to do it. Interest is governed by the earning power of real capital, or capital in the shape of tools, buildings, stocks of merchandise, etc. If a dealer in wheat can make 5% a year in wheat—if for every hundred bushels that he has on hand at the beginning of a year he has a hundred and five at the end—that represents the real increase of his productive fund. With prices going up at the rate of 2% a year, he is making 7% in money. That is about what competition will make him pay for whatever money he borrows.

It takes time for the interest on loans to adjust itself to a continued and steady rise in prices, but in the end it does this surely and completely. Lenders cannot otherwise get interest and avoid making a sacrifice on their principal. Borrowers have to pay enough to enable them to do this, for competition sees to that. So long as producers can make a shade more than regular interest by borrowing money and putting it into their business they will compete with each other for loans till they bring the rate of interest up to the point at which the gains in real capital—the five bushels of wheat that, in our illustration, have grown out of the handling of the hundred bushels—are made over as a net interest to lenders.

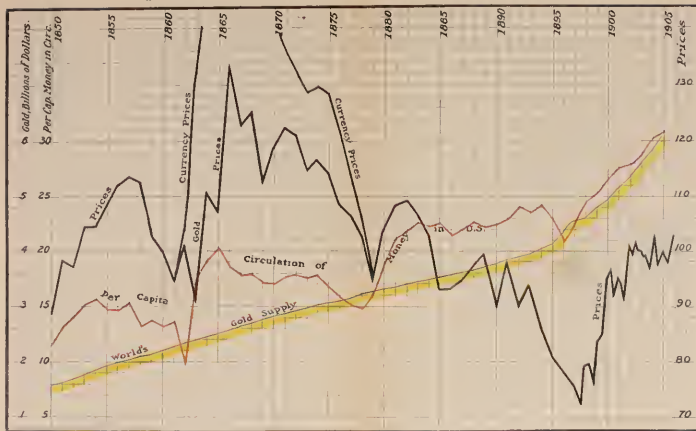
A long continued and steady rise in prices adds to the rate of interest in loans. It adds, in the long

run, just enough to make good to lenders the shrinkage in the purchasing power of their capital. At the outset of the upward movement in prices it does not do this. For a time lenders are losers and borrowers are gainers from the boom in the value of merchandise; but in the end interest conforms to the earning power of real capital. It gives the lenders this amount, besides recouping them for the higher prices of goods—that is for the shrinkage in the purchasing power of the principal of their loans. A quick and brief rise in prices means a profit for the borrowers; but a steady and permanent one means nothing but an addition to the rate of interest on money.

If the upward trend of prices that has been the feature of the past few years should be permanent—if the output of gold should outgrow the volume of business, as some persons seem to think it will—a high rate of interest on loans will be a permanent fact. It will not have to be a perpetually rising rate, but only a rate that shall be and remain higher by a certain fixed amount than the earnings of real capital as computed in kind. It is morally certain that some part of the increase on loans which has lately taken place is due to this cause. A mere scarcity of currency causes an apparent rise in interest, which is really nothing but a premium on the circulating medium itself. If horses had the distemper and groceries had to be delivered by special messengers going afoot, the grocers might charge something for such deliveries and the goods when they reach us might be dear. Money is a carrier—a means of transferring real value from hand to hand—and when it is momentarily scarce a pre-

CHART II.

Showing Relation Between World's Gold Supply, Money in Circulation in U. S. and Prices in U. S.



Previous to 1859 Prices are taken from the Aldrich (Senate) Report. After 1859 from Dunn's Index Numbers. They were but half a point apart in 1859. Currency prices went to 172 in 1864; 232 in 1865; 188 in 1866; 166 in 1867; 174 in 1868; 152 in 1869; 144 in 1870

mium has to be paid for the use of it. This counterfeits a rise in actual interest, but is by no means the same thing. Such a premium on currency recently appeared; but together with it and outlasting it is a rise in the rate of interest on loans, which is, without much doubt, the offset that lenders are now getting for rising prices.

Permanently high prices due to a permanent abundance of gold would have no such effect. It is only when the prices are in the process of rising that the higher charge for loans is made. Prices high but steady mean that the increase of productive capital, as it takes the form of goods, is accurately expressed by the rate charged for money loaned. However high wheat may be selling—whether it commands a dollar or two dollars a bushel—if the dealer gains five bushels per hundred, the capitalist who lends the money that enables him to carry the wheat gets—or tends normally to get—five dollars per hundred for his loan. Suddenly rising prices help the borrower and hurt the lender. Permanently rising prices help neither of them, but make nominal interest high. Permanently high prices do none of these things. They take nothing from the gains of any class engaged in commercial transactions. For men living on fixed salaries they have their significance and it is only too apparent; yet wages and many salaries adjust themselves in the end to the high level of the cost of goods; and if this were a universal fact there would be neither gains nor losses to be expected by any class in consequence of the permanent abundance of money.



THE LATE WALTER S. LOGAN

The Duty of Gold

By WALTER S. LOGAN

IN technical speech the duty of anything is the amount of work it can do; the service it can perform.

Webster in defining the word as applied to engineering says:

“The efficiency of an engine, especially a steam pumping engine, as measured by work done by a certain quantity of fuel; usually the number of pounds of water lifted one foot by 100 pounds of coal.”

Gold, as the foundation of the currency of the world—as the universal measure of value—has a certain duty to perform. The gold in the world at any given time has to serve as the ultimate measure of values for all the commercial transactions going on at that time. Other things being equal and other conditions the same, if the gold available for money bears a lower ratio to the commercial transactions dependent upon it, its duty is greater—each ounce of gold has more work to do.

As the gold increases in proportion to the work to be done, the duty of each particular ounce of gold is diminished.

This duty of ultimately measuring values is now practically performed throughout the world by gold alone. Even in the countries where there is still free

coinage of silver, gold is nevertheless practically the standard of values, and prices in all foreign and most domestic transactions are determined by the rate of exchange. A generation or so ago this duty now performed by gold alone, was divided between gold and silver. There was free coinage of both metals in countries enough to make both of them real standards of value upon a pretty definite ratio. Then the world's commercial transactions were based upon the total stock of gold and silver in the world available for money uses. The demonetization of silver—that is, the fact that the leading commercial countries of the world ceased to admit silver to their mints on the basis of free coinage, whatever the reasons for their action may have been—took away half of the world's ultimate money, and imposed upon the other half the duty formerly performed by the whole. The result was a scarcity of gold, an increase in its value, and a universal fall in prices to correspond with such increase. The bushel measure had become bigger and so there were fewer bushels in every bin.

Of course the expression I have used, "a universal fall in prices," must be taken in a general sense. The prices of some commodities did not actually fall, because other conditions were at work at the same time which tended to make them rise. In such cases, instead of an actual fall in the price of the commodities there was only less of a rise than there otherwise would have been, but the tendency was universal. All prices fell unless there were conditions to make them rise which counteracted the fall. The increase in the size of the bushel measure was universal, but in some excep-

tional cases the size of the bin had also been increased.

The result of this increased duty imposed upon the one standard metal, and which increased the value of that metal and so decreased the price of everything else which was measured by it, was to increase the profits of producing gold and so encourage its production. The demonetization of silver turned the whole world loose looking for gold mines, and now the chickens that were hatched a generation ago are coming home to roost. The world that turned itself loose looking for gold mines has found them, and the gold is increasing so that the stock of it in the world is greater than the stock of gold and silver together was a generation ago. The production is still increasing at a phenomenal rate. It doubles about every ten years. Of course it cannot go on in this geometric ratio forever, but the end is not yet in sight. The best estimate is that there are about six thousand millions of dollars in gold available for currency in the world to-day. The production is now about four hundred millions a year and is increasing twenty millions and more every year. Some of it is used in the arts, but the increase of its use in the arts is much slower than the increase in its production, so that every year a larger and larger percentage of the gold produced becomes available for money uses. It is pretty safe to say that the gold money, or the gold available for money in the world, will double during the next fifteen years, so that instead of six thousand million dollars that we have to-day we shall have twelve thousand million dollars of it fifteen years from now.

Meantime the commercial transactions of the world are increasing, but by no means as fast as the amount of gold is increasing, and besides we are every day learning new tricks in the way of making every ounce of gold do greater work. The art of banking is advancing with the other arts. The domestic clearing house makes necessary only the payment of local daily balances, and the great banking houses of the world have now established what is practically a clearing house for even international transactions, so that there is every year a greater and greater exchange of credits and less and less payments and shipments of gold. If we say that twenty years from now there will be twice as much gold in the world available for money in proportion to the demand there will be for its use as money, we shall be quite within the mark. An ounce of gold will then have only half its present duty to perform.

The practical result is likely to come much sooner, for we are learning fast to utilize the productions of the future in the markets of the present. A short time ago we saw in the market reports that the price of wheat had fallen in London on account of Russian offerings, made possible by the peace between Russia and Japan. Not a bushel of that wheat had arrived in London. Probably very little of it had got as far as Odessa. Most of it was still in the Russian harvest fields, not ever threshed, but still it could be sold in London just the same as if it was actually there. The exporters at Odessa had their agents through the grain-growing regions of Russia and were able safely to buy

the grain from the farmers for future delivery and to sell it to the English importers also for future delivery, and the English importers could depend on its arrival in England in time to fill their orders.

The price of each year's cotton crop is practically fixed and a large part of it sold before the cotton is picked—as soon as a good guess can be made as to how much is likely to be produced.

The effect of the gold production for twenty years to come begins to be felt as soon as the financial world is satisfied as to what that production is going to be, and the duty of the ounce of gold commences to diminish the moment we can see how many more ounces there are to be at some future time to do that duty. If the world is sure that in twenty years there will be twice as much gold as there is now to do the same duty, we shall get pretty nearly the full effect of the increase within ten years and we begin to get the effect at once.

This is what is now happening. It is not so much the actual as the threatened increase that there has been of the stock of gold in the world that is sending prices skyward and demoralizing credits. Of course the increase in the production of gold must finally come to an end. The time will come when gold mining will be unprofitable and the world will turn its energies that are now devoted to gold mining to other things; but the change will of necessity come slowly. Assuming arbitrarily that it now costs \$10 to produce \$20 worth of gold—the estimate made for the mines of the Rand—the time will come when the prices of labor

and other commodities, measured in gold, will rise to such a point that it will cost \$10 to produce \$10 worth of gold; but the effect upon production will not be immediate even then. The pendulum will not stop at the thirty-minute mark, but always swings beyond. Things will go on until it costs \$10 to produce seven or eight dollars worth of gold.

There are three reasons why such a result is sure to come:

1. The general inertia of mind as well as matter. Business men acquire habits that are hard to change and they continue to do things which were once profitable long after the profit has disappeared. They continue to hope against hope for a return of the old conditions.

2. This inertia is especially noticeable in a business like that of the production of gold. It requires an immense capital and an extensive outfit and equipment. Half the cost of producing an ounce of gold is in getting ready to produce it; and when you have got ready you cannot afford to stop the actual production even though it may be at a loss. If it costs ten million dollars to produce twenty million dollars' worth of gold, five millions of the ten millions would probably be spent in the development and equipment of the mines and reduction works—in getting a plant. Having spent this five million dollars, the producers would have to go on and spend the other five millions even though they found that the gold they would produce would be worth only six million dollars instead of twenty millions, and the production would be

likely to continue years and years after the profit had disappeared.

3. A large proportion of the gold of the world—and an increasing proportion—is produced as a by-product in the production of other metals, especially copper. Most of the great copper mines of the world produce some gold. A few produce greater values in gold than in copper; others less amounts. The reduction in the value of the gold would not necessarily interfere with its production. There might be a profit in the production of the copper without the gold, and the production would go on without much change even though the value of the gold should be reduced very materially indeed. Copper production is increasing rapidly and the production of gold as a by-product increases with it.

For these reasons I think I am within limits in stating that the production of gold is likely to continue to increase for twenty years to come at least, and that when the increase ceases the decrease will be very gradual indeed.

When the process gets through—when the pendulum has had its full swing both ways and come to a standstill—the world will have on hand a tremendous stock of the yellow metal, enough to cut its value down to one-half, if not to one-quarter; that is, enough to double, if not quadruple, the price of other commodities.

I am going, however, farther than I intended into the region of economics. A lawyer has to be a practical man whether he will or not. Clients come to him for

advice not as to general tendencies, but as to specific things. They ask him not what he thinks of coming events generally ten or twenty years off, but what they shall do to-day; whether they shall buy a certain bond or stock that is offered them for investment and as to the purchase of which they have to give an immediate answer.

How is this increase in the production of gold and the consequent diminution in the value of the ounce of gold, or increase in the price of commodities measured by the ounce of gold, to affect investments?

1. The first effect must be to increase the value of the share of stock and diminish the value of the bond. A railroad that is now worth \$10,000,000 has that value represented perhaps by \$5,000,000 of bonds and \$5,000,000 of stock. Twenty years from now—and it may be not more than ten—with the amount of gold in the world available for money doubled, and so its value diminished and the bushel measure made smaller, the railroad will be worth in the money of that day, say \$20,000,000. The nominal value of the \$5,000,000 worth of bonds would remain the same and the rest of the value of the property, then nominally \$15,000,000, would be represented by the stock, and the stock would be nominally worth three times what it is now and really worth once and a half as much, for the bond remaining the same in nominal value, would have only half its former real value—you could buy only half as much of anything you wanted with the money you would receive either for principal or interest, for the principal and interest would both be paid in gold and the gold would be worth only half

as much as before. A man who invests his fortune in bonds to-day and holds them twenty years—meantime spending just his income and making no gains or losses—will find his fortune then nominally just the same as it is now, but really it will be only half as large. The man who invests in stock where half the value of the property is represented by underlying bonds, assuming that he makes an intelligent investment which pays him a fair interest and that there is no depreciation in real values, will find that he has a fortune nominally three times as large as he has now and really one and a half times as large, for he will have in addition to the fortune with which he started half the fortune of the man who bought the bonds that are under his stock.

The moral is, don't buy bonds of any kind now for long investment.

2. The effect upon investments based upon franchises is likely to be very serious. Take, for instance, the Metropolitan Street Railway securities or the Brooklyn Rapid Transit securities, which are dependent upon the operations of the New York City Railway Company or the Brooklyn Heights Railway Company. The companies pay now, we will assume, three dollars a ton for coal and two dollars a day for labor. If the gold goes down 50%, coal and labor would go up 100% to give the coal miner the same price for his coal and the laborer wages of the same purchasing power. These two railway companies receive five cents fare for carrying each passenger, and the amount is limited by law. It will be a cold day for either company, unless public sentiment changes

very materially, when they go to the Legislature to get permission to increase the rate of fare. It costs them with the present rate of wages and the present price of coal—that is, with money at its present purchasing power—two and a half cents to carry the passenger. The profit is two and a half cents and all the income in the way of dividends or interest of all these securities of these two companies is dependent upon that two and a half cents profit. But with labor at four dollars a day and coal at six dollars a ton—that is, with the operating expenses doubled—it would cost them five cents to carry the passengers and there would be no profit.

At any rate, even if the effect be not in reality quite so startling, the profit is likely to grow beautifully less and the funds available for interest and dividends to grow small, almost if not quite to the disappearing point.

The moral is, don't buy for long investment securities of public service corporations where their charges are limited by law.

The same consideration applies to the securities of steam railroads and of all transportation companies to a less degree. Their rates are all either fixed or limited by law or are likely to be.

Of course, if the profit should permanently disappear the community would either have to allow higher rates of fare and freight or do without the service or—what is much more likely—take over the franchises themselves at the then valuation, which by that time would have suffered a very material decrease.

If we could find an instance where a public service corporation had, for example, built a trolley system,

capitalized their property at cost, issued no bonds and indulged in none of the usual tricks of the trade in the way of holding companies, etc., the stockholders would be in receipt of some returns, though of a diminishing amount, down to the time when the cost of operation equaled the returns from fares and freight. But where there is a series of corporations, built one upon the other, and the real operating company has to pay interest and dividends on a capitalization several times the real cost of the property before its own bondholders and stockholders begin to receive any income whatever, then the bankruptcy of the operating company is very much nearer. The interest and dividends of the holders of the securities of the old Sixth Avenue and Eighth Avenue horse railroad companies or the Brooklyn City Railroad Company would long survive the holders of the securities of the Metropolitan Street Railway Company or the Brooklyn Heights Railway Company.

To wipe out the equity of the holding companies it is not necessary to have an increase of 100% in operating expenses—an increase of 50% would be quite sufficient. It would not be necessary to wait twenty years—ten or perhaps five years may do the work.

Such astute investors as the late Roswell P. Flower and the late William C. Whitney knew pretty well what they were doing when they sold their traction holdings in their lifetimes and left better things in their estates.

So far as this increase in operating expenses represents an increase in the rate of wages, whether the increase is caused by increase in the world's gold supply

or otherwise, all good citizens will hope and pray for it to come and come speedily, whatever may be the effect upon the price or value of marketable securities. There are thousands doubtless who receive dividends and interest from such securities. There are millions who are affected by the wages that are paid. The thousands may suffer. The millions will profit. A nation's place in civilization is really measured by its wage rate, and any force that increases that, is doing God's holy work.

As for the four dollar or five dollar or six dollar wage rate for motormen and conductors, let us welcome the prospect of it. No matter what inconvenience it may cause in Wall Street or on Murray Hill, it will bring unspeakable happiness to Tenth Avenue and the East Side.

3. The best security to invest in for a long investment to-day would seem to be something which is based upon some monopoly of production, so as to avoid destructive competition, and as to which there is full and absolute ownership, not based upon any public franchise.

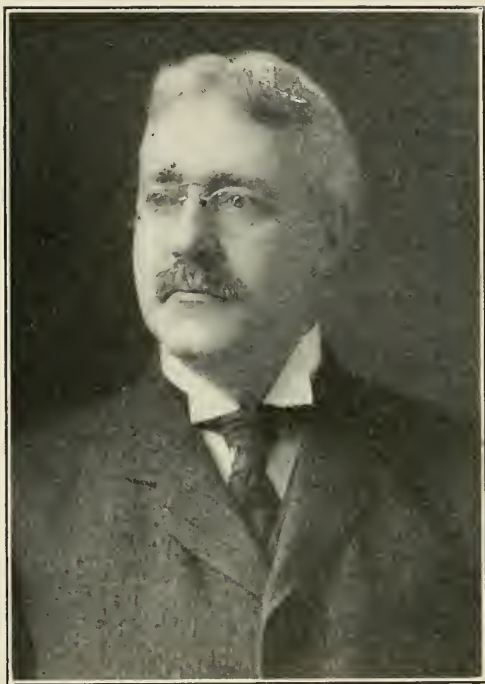
Actual property rights will remain long after franchises are wiped out either by bankruptcy or by public absorption.

Real estate of all kinds where favorably situated so that the investor gets full value for his money, comes within this description. This includes the stocks of honestly and intelligently managed corporations which have real estate as their assets. Mines are real estate as well as building lots, and there is no better investment to-day than in the securities of mining companies—other than those which are mining for

gold alone—moderately and fairly capitalized and well managed. All industrials are good investments where there is some effective security against destructive competition and where there is an assurance of the continuance of good management. A manufacturing enterprise with a specially favorable location so that it has the advantage of water power or nearness to the markets for raw materials and manufactured products and is not of such a nature as to be liable to government regulation, cannot but be good if properly managed. Nothing could be better than a railroad if it could be assured of being allowed to charge, and of being able to charge, remunerative rates, for traffic of all kinds will certainly increase.

It is not my purpose to make an enumeration of all good or all bad investments. I simply state some that are surely good and some that are surely bad as illustrations. My object is simply to furnish tests which can be applied to each investment as it comes up. If I am right in my reasoning the tests are:

1. How will it be affected, directly or indirectly, by the increase in the gold supply of the world that is going on so fast, and
2. Is it honestly and intelligently managed? If not it can have no possible merit that will compensate for this fatal defect.



FRANK A. VANDERLIP
Vice-President National City Bank

Influx of Gold Means Prosperity

By FRANK A. VANDERLIP

MR. FRANK A. VANDERLIP, Vice-President of the National City Bank of New York City, devoted a large part of his address to the American Bankers' Association in Washington, on October 11, 1905, to the subject of the increasing output of gold. As but few, if any, of the newspapers printed this most interesting part of his address in full, it is here reprinted. It is as follows:

The world has withstood the financial strain of a war which cost the combatant nations two billion dollars. It has withstood that strain so easily that one is led to inquire how it has been possible that such a disaster should have produced no more unfortunate results. I believe the answer to that should be looked for in a quarter to which our academic friends have been giving some attention, but which has not as yet come to exercise very great interest among practical financiers. It is not alone to the raisers of grain that Nature has been bountiful of late. The mines of the world have been yielding treasure as lavishly as have our fields. In every day of this year, nineteen hundred and five, work days and feast days, holidays and Sundays, there will be drawn from the ground a million dollars of new gold. And then when the total is finally cast up there will be a number of odd millions to spare

above that average. The mines of the world will produce this year \$375,000,000 of gold. The final figures for the production of gold in 1904 have recently been made and they footed \$347,000,000. We may reasonably look forward in the near future to an annual output of \$400,000,000 of new gold for at least a considerable number of years. When we remember that in 1885 the production of gold was but \$115,000,000; when we remember, further, that the entire monetary stock of gold in the world is about \$5,700,000,000, we can calculate that the output from the mines in the next fourteen years promises to equal a total as great as the present monetary stock of gold. These figures are startling. They perhaps suggest the possibility of a disturbance of values. It does not follow, of course, that with the production of \$400,000,000 of gold per annum the monetary stocks will be increased by that amount. The uses of gold in the domestic arts draw off at least \$75,000,000 a year, but that will leave over \$300,000,000 a year to add to the gold reserves. So eminent an economist as Le Roy Beaulieu has estimated that the monetary stocks of the world will be doubled in twenty-five years. In the light of recent statistics of the output of production I have no doubt he would modify that estimate and incline to the view that the monetary stocks will be doubled in twenty years.

THE INFLUENCE UPON PRICES

What is this to mean to the business situation? What is to be its influence upon prices? What effect will it have upon money rates? These are no longer

academic questions. They are practical considerations which need to be taken into account by business men. The great increase in gold production which has been in progress since the close of the Boer War has, in my opinion, been a factor in the rapid recovery from the depression of three years ago. At that time, through financial excesses and indiscretions, we had been led into a dangerous position. In Europe also the chilling effect of the great destruction of capital occasioned by that war, was everywhere manifest. This new gold production pouring itself into the bank reserves of the world has been an influence in bringing about the quick recovery from depression and in withstanding the shock of the future destruction of capital which the Russo-Japanese War entailed.

CLASSICAL ECONOMISTS AND WHAT THEY SAY

The classical economists, Ricardo, Adam Smith and Mill, evolved the quantity theory of money. They held that the prices of things would vary with the quantity of money in existence. If the money stock were doubled, prices would be doubled; if the money stocks were halved prices would be cut in two. That theory has been proved to be inadequate. There are many other interfering circumstances and modifying conditions. Nevertheless there is economic truth and force in it. It is within the intimate knowledge of all of us that if our bank reserves are increased we are moved to increase our loans. A pressure to increase loans tends to reduce interest rates. Lower interest rates enhance the price of income-paying securities. I think everyone will accept, subject to important modi-

fying conditions, the statement that an increase in the monetary supply has a tendency to advance prices. There may be other influences that will counteract in the final result. There can be no doubt, however, that with every million dollars of gold added to the bank reserves of the world, there is a disposition to increase credit lines. That increase in credit lines in turn has its influence on the side of advancing prices. As a practical matter, however, I do not believe we are facing any economic revolution as a result of this influx of gold. We must remember that the growth of business may keep pace or even run ahead of the substantial growth in the gold reserve, so that in spite of actual increase the relative percentage of gold reserves to credit demand would leave prices unchanged.

The subject is a fascinating one, but at the outset it must be admitted that it is not one for accurate calculation and definite conclusion. There are a few considerations, however, and some popular misapprehensions in regard to it concerning which it would be well to have clear thinking. For example, it is rather commonly said a great increase in the gold supply will bring us to a permanently lower interest basis. That is a misconception. It is true that the first effect of gold additions to a bank reserve will be to lower the interest rate. That effect, however, is temporary. When the money supply has reached a permanent level, no matter how great the increase in it has been, the interest rate, other things remaining unchanged, will find its regular level. Interest is but a payment in kind. If the value of money depreciates, the value of interest payment depreciates as well. We need look

for no permanently lower interest basis as a result of an increase in the money stock, but while that increase is in progress, the reserves are being constantly augmented and the tendency would be toward lower rates.

There is another consideration which we should have clearly in mind. Disregarding for the moment all other influences, we may lay down the principle that an increase in the supply of money will tend to advance the price of real property, but the price of an obligation repayable in money will not tend to advance. That is to say, that real estate and all forms of property, including shares of corporate stock, which represent an ownership in real property, would advance, but bonds, which represent only the right to demand a payment in money, would not advance. All persons having a fixed income would find the purchasing power of that income reduced. The return from mortgages and bonds would have a reduced purchasing power. Persons receiving fixed salaries and wage earners generally would be at a disadvantage, for their incomes would not tend to increase as rapidly as the purchasing power of their wages decreased. Under such a set of circumstances, there would be constant pressure from wage earners in order to increase their incomes so as to keep pace with the advanced cost of living. Is not that exactly what we have been seeing, and are we not likely to see more of that same pressure to advance wages as the cost of living advances?

These are tendencies which would become sharply manifest if there were not counteracting influences opposing them. That there are sure to be such counteracting influences goes without saying. I recall a

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conversation which I once had with the great German financier, Von Siemens, the creator of the Deutsche Bank. The balances of trade in our favor had been climbing up from \$400,000,000 to \$500,000,000 and then had gone well beyond \$600,000,000, and it looked as if we might drain Europe of her whole monetary stock if that sort of thing was to go on. I asked Herr von Siemens what was to be the outcome for Europe. He replied with a well known German phrase, "A tree never quite grows to heaven." Events soon proved that this tree of favorable trade balances could not quite grow to heaven, although for the moment it did look as though it were likely to. And so with this increased production of gold which gives promise of doubling the monetary stock of the world in the next score of years. We might expect, if the theories of the classical economists held good, that with a doubling of the gold stock would come a doubling of prices. We can, however, be very certain that the theory will not entirely hold good. There will be counteracting influences. While there will undoubtedly be a tendency to advance prices as a result of this influx of gold into the bank reserves of the world, I do not believe the gold production is likely to become a serious menace. I do not believe that it will so disturb those business relations that are based upon the terms of money, as to cause any vital derangement of affairs.

OUR COMMERCIAL AWAKENING

What I do believe is that there is likely to follow just what followed in the two former periods of the

world's history when there was an extraordinary production of gold added to the monetary stocks. One of these periods followed the discovery of America, when the treasures of Mexico and Peru were exploited. The other was in the years following the discovery of gold in California and Australia. In each case a mighty impulse was given to the exploitation of virgin fields of development. It seems to me not improbable that the next few years will witness the expansion of the field of commercial enterprise into new places. Countries that are commercially and industrially backward will yield to this new influence. It seems to me that one of the direct and important effects of this great production of gold will be to give an impulse to the development and industrial exploitation of South America, Africa, Asia and eastern Europe. At our own hand is South America on one side, and China and Japan on the other. We are rapidly awakening to the commercial possibilities within these countries. If we are to have an influx of gold more than ample to sustain the credit-operations for our domestic affairs, that fact will tend to lead our interests into these new fields of exploitation. Then, in turn, a wider use of credit which these new fields will develop and the increased reserves which that wider use of credit will make necessary, will probably absorb the increasing gold stock in beneficent uses, preventing it from ever becoming a serious menace to business organization.



IRVING FISHER

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Gold Production and the Rate of Interest

By PROFESSOR IRVING FISHER

THERE is undoubtedly, at the present time, an outlook for an increasing supply of gold. There does not seem to be any impending check to the tendency for gold to depreciate, unless it be found in the increasing demand for a medium of exchange in consequence of the continued expansion of business transactions. That there exists at present a tendency for prices to rise is evident from the statistics of index numbers, both in this country and in Europe. While the present increase of prices may not continue at so rapid a rate, and may even receive occasional setbacks, it does not seem improbable that the next generation will see, on the whole, a steady and gradual upward movement. It therefore becomes a question of considerable importance what will be the economic effects of such a prolonged rise in prices as may be expected.

Among the important effects of the change will be its influence upon the rate of interest. It is a great but common error to suppose that an increase in the supply of gold, and consequent expansion of prices, will result in a lowering in the rate of interest. This error has been repeatedly exposed by economists from the time of Locke to the present, yet it is unquestionably only too common today, especially among business men, who should be the first to realize practically

the connection between the monetary changes and the interest rate. They reason that an increased production of gold will increase the supply of gold which is available for loans. While this is undoubtedly true, the effect is ultimately neutralized by a corresponding increase in the demand for loans. A merchant, for instance, who borrows in order to lay in a stock of goods, when he finds that this stock costs him more than before prices rose, will proceed to borrow more than before. The effect, therefore, of increasing prices will be to stimulate the demand for loans quite as much as the supply.

Moreover, if it were true that an increased supply of money lowered the rate of interest, we should find that high prices in actual fact, as shown by statistics, were associated with low rates of interest, and vice versa. But a careful study of the facts, taken over any considerable period of time, will fail to reveal any such relation. The present writer, in making an investigation in regard to the rate of interest, found that the rates of interest in seven different countries examined were on the whole higher when prices were high than when they were low. The results are summarized in the following table, in which the years of each decade are classified as years of high and of low prices according as they stand above or below the average price level for the decade.

GOLD PRODUCTION AND RATE OF INTEREST 123

MARKET RATES OF INTEREST IN RELATION TO HIGH AND LOW PRICES.*

	1824 to 1831 incl.	1832 to 1841 incl.	1842 to 1851 incl.	1852 to 1861 incl.	1862 to 1871 incl.	1872 to 1881 incl.	1882 to 1891 incl.
London, High prices..	3.8	4.4	3.6	5.4	5.1	3.7	3.0
London, Low prices..	3.2	3.2	2.6	3.0	2.6	2.5	2.5
New York, High prices	—	—	—	9.1	7.4	7.0	5.3
New York, Low prices	—	—	—	9.1	6.7	5.1	5.1
Berlin, High prices...	—	—	—	—	4.6	3.7	3.3
Berlin, Low prices....	—	—	—	—	3.4	3.2	2.7
Paris High prices....	—	—	—	—	—	4.1	2.6
Paris, Low prices....	—	—	—	—	—	2.4	2.6
Calcutta, High prices.	—	—	—	—	—	6.2	5.4
² Calcutta, Low prices.	—	—	—	—	—	5.6	6.2
Tokyo, High prices...	—	—	—	—	—	12.3	10.1
³ Tokyo, Low prices...	—	—	—	—	—	12.0	10.1
Shanghai, High prices	—	—	—	—	—	—	6.0
⁴ Shanghai, Low prices	—	—	—	—	—	—	5.7

Of the 21 comparisons contained in this table, 17 show higher rates for high-price years than for low-price years, one shows the opposite condition and three show equal rates in the two cases. As the table covers 68 years for London, 40 for New York, 30 for Berlin, 20 for Paris, 19 each for Calcutta and Tokyo, and 9

*For New York, the rates for the first decade are averaged.

The index numbers of prices which have been employed are those of Jevons (1824-51) and Sauerbeck (1852-91) for England, Soetbeer and Heinz for Germany, the Aldrich Senate report for the United States and France, and the Japanese report for India, Japan and China. The table ends in 1891 because there are no index numbers for the United States since that year.

2. For Calcutta the rate for the bank of Bengal is employed, no "market" rate being available. The first column is for 1873-81 instead of 1872-81, for the reason that no index number for 1872 is available.

3. For Tokyo the first column is for 1873-81 for the same reason.

4. For Shanghai the period is 1885-93 instead of 1882-91, for the reason that the available rates begin in 1885 and the index numbers end in 1893.

for Shanghai, or 205 years in the aggregate, the result may be accepted with great confidence. It shows that instead of times of high prices being times of low interest, the reverse is rather the case. We need not stop here to ask why this is so. It suffices to point out that the statistics lend no countenance to the prevailing view that plentiful money means low interest. Leaving, therefore, this error, we proceed to the main topic of the present paper, which is the study of the effect of steadily depreciating currency upon the rate of interest.

We have reference, not to depreciated currency, but to depreciating currency; that is, not to the question of what the rate of interest will be after the present upward price movement ceases and a new stationary level is reached, but what is the effect during the long interim while prices are in process of rising.

The effect of depreciating currency upon the rate of interest will depend upon the extent to which that depreciation is or is not foreknown. If we could suppose that the depreciation of money or increase of price occurred entirely unforeseen, the result would be that the rate of interest would remain relatively unaffected. In consequence of this, as has often been pointed out, the creditor would lose on account of the depreciation of the principal. He would be repaid in a standard of less value than that which he anticipated when he contracted the loan. In the same way the debtor would gain. Rising prices or depreciating currency would therefore mean in this case a decrease of the burden of debts and an unintended transfer of

wealth from debtor to creditor. Other cognate effects on loans and enterprise have often been noted.

On the other hand, could it be assumed that the general upward trend of prices were definitely known in advance, the rates of interest would be high throughout this rising period; for a creditor who knew that he would be repaid a depreciated principal would attempt to recoup himself in advance by an increase in the rate of interest.*

It would not be necessary that this should be consciously thought of by him as an effort to offset the depreciation in the currency. Thinking, as he always does, in terms of money, he would simply see that in consequence of a prospective increase in prices, money dividends will increase and there will be better opportunities for him as an investor to make money from stocks than from bonds, unless the latter can be obtained on such terms as to compensate for this advantage. But in whatever aspect the matter appears in his eyes, the effect on the rate of interest is in essence an increase such as to offset the prospective depreciation

*For a mathematical statement of this relation see the writer's "Appreciation and Interest," (Publications of the American Statistical Association, 1896.) The connection between interest and appreciation was recognized by the anonymous author of a remarkable pamphlet entitled "A discourse Concerning the Currencies of the British Plantations in America," Boston, 1740 (reprinted in the Overstone Tracts, 1857); also by John Stuart Mill, in Book III, Ch. 23, Sec. 4, of his Principles of Political Economy; by Jacob de Haas, in a paper called "A Third Element in the Rate of Interest," published in the Journal of the Royal Statistical Society, March, 1889; and by Professor John B. Clark in "The Gold Standard in the Light of Recent Theory," Political Science Quarterly, September, 1895. More recent recognition of the principle is found in Byron W. Holt's "Interest and Appreciation," Sound Currency Pamphlets, Vol. 5, No. 22, 1898, and by Professor Alfred Marshall in his parliamentary testimony published in the Indian Currency Report, 1899, Pt. 2, p. 169.

in principal. In other words, a business man who foresees that the monetary standard is changing will take measures to safeguard himself, just as would contracting parties if they knew that the standards of weights and measures were about to be changed.

One of the best instances of the influence of a prospective change in the monetary standard upon the rate of interest is afforded by the action of a syndicate, which after the panic of 1893 offered two alternative loan contracts to the United States government. One, in which the gold standard was specified, was offered on a 3% basis, and the other, in which the standard was to be "coin," which might mean silver of less value than gold, was offered on a $3\frac{3}{4}\%$ basis. The present writer, in a paper published by the American Economic Association in 1896, showed that there was much statistical evidence that changes in the monetary standard were foreseen and forestalled by the adjustment of interest rates. It is his intention soon to publish further verification in a book on "Capital and Income."

Among the items of evidence may be mentioned the following: First, where it happens that two different standards in the same market are used, the rates of interest realized to investors in the two cases differ in accordance with the expected relative changes in the two standards. For instance, in the United States before the period of resumption of specie payments, there were two sets of bonds, one payable in coin (gold) and the other in "currency." It was found that from 1870 to 1878, the date of resumption, during which the currency standard gradually rose toward the gold stand-

ard, the rates of interest realized to the investor in the "currency" bonds were actually less than for the coin bonds. This effect was particularly noticeable after the passage of the Resumption Act, when the elevation of the "currency" standard to the gold standard was assured.

Perhaps the most interesting case of two bonds of different standards is afforded by the government of India, which has for years maintained a double form of funded debt, one in pounds sterling and the other in rupees. Before the rupture of the world's bimetallic ties, which occurred about 1873, gold and silver remained almost exactly on an equality at the ratio of $15\frac{1}{2}$ to 1. Consequently, up to this point, the value of the rupee remained close to 23 pence. But as soon as bimetallism was broken down through the increase in the production of silver and the consequent demonetization by France and other countries, the rupee steadily declined in value until 1893, when the Indian mints were closed to silver and the rupee was given an artificial value midway between gold and silver. In fact, the rupee continued to decline for two years more, in consequence probably of the existence of coin hoards which were gradually turned into the circulation. But after 1895 the rupee began to rally in consequence of the scarcity value given to it by the action of the Indian government, until, in 1898, it had reached the legal level of 16 pence, at which it has remained ever since. We therefore see that there were four different periods, showing four different relations between the gold and the rupee standard: (1) a period of high and stationary value of the rupee, prior to 1875; (2) a

period in which the rupee fell with reference to gold, from 1874 to 1895; (3) the period of the partial recovery in the value of the rupee, from 1896 to 1898; and (4) the period from 1898 to the present, during which the rupee has remained at its newly-found level. We find that the rates of interest realized (to maturity) by the investor in these two securities, reckoned at par during these four periods, were as follows:

		Average Rate of Interest in Rupee Standard	Standard Gold interest in Rate of Average	Difference	Gold Value of Rupee
1865-1874	incl.	4.1	3.9	.2	constant
1874-1895	incl.	4.0	3.3	.7	falling
1896-1899	incl.	3.5	3.1	.4	rising
1900-1905	incl.	3.6	3.5	.1	constant

We observe here that during the first period, while the gold value of the rupee kept constant, the two securities yielded nearly equal rates of return; during the second period, when the price of the rupee was falling, the rate of interest realized to the investor in the rupee security was much higher; in the third period, when the rupee was rising, this disparity began to disappear and in the fourth period, when the rupee was once more stable, the two securities sell again on the same basis. The fact that in the third period the rate on rupee paper was not actually lower than on gold security was due to the lack of confidence that the closure of the mints would prove efficient in elevating the value of the rupee.

Further and more direct evidence is found in the fact that periods of rising prices are actually periods

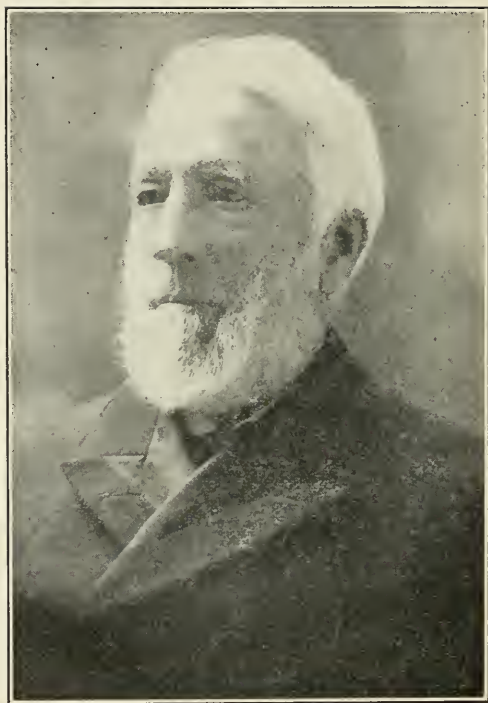
of high interest, and periods of falling prices are periods of low interest. This was found by the writer to be true in 57 cases out of 73, distributed as in the table below. In the remaining 16 cases the relation did not hold true; that is, interest was low in spite of rising prices, or high in spite of falling prices:

Cases in which interest is	Eng-land	Ger-many	France	United States	India	Japan	China
high or low as prices rise or fall	21	12	8	3	4	1	8
high or low as prices fall or rise	5	3	2	2	1	2	1

But, while the evidence shows that the prospective changes in the monetary standard are dimly foreseen and partially forestalled, the foresight thus displayed is extremely imperfect. There are relatively few who really foresee the rise and fall in prices, and those who do are possibly sometimes misled in their action in consequence of the prevailing prejudice that an increased money supply must lower interest rates, and vice versa. When we come, therefore, to consider the extent to which actually the market safeguards itself against changes in the monetary standard, we find that it usually underestimates the prospective change, whether it be one of appreciation or depreciation. In an attempt to estimate the effect of the falling prices, or appreciation of the monetary standard in terms of commodities during the period of 1873 to 1895, it was concluded that the offset to this appreciation through

a decrease in the rate of interest was less than half what it should have been in order to be complete. We may with considerable confidence predict that should the ensuing generation see a gradual depreciation in the monetary standard, the rate of interest will remain fairly high, but not high enough to compensate for the annual fall in the monetary standard. Thus, though the rate of interest will be apparently high, it will, in its burden upon the debtor, be actually low, and the creditor will, therefore, lose to some extent. Should this be true, it will also be found that in general those who have invested in stocks will be better off than those who have invested in bonds, for the stock investor represents, in these relations, the debtor, and the bond investor, the creditor.

All these calculations, however, are based on the assumption that prices will actually rise through a long period of time. Economic predictions are extremely hazardous, and the present writer disclaims having made a sufficient study of prospective monetary conditions upon which to base any sure prophecy.



ELLIS H. ROBERTS

Ex-Treasurer of the United States

Over Supply of Gold Unlikely

By ELLIS H. ROBERTS

IF the current of \$350,000,000 of new gold were to flow every year into a field where everything was in equilibrium, the problem of determining the facts would be simple. But the increase in the supply of gold is only one, however great, of many factors, at work in the world of business. The wants of man grow always in scope, variety, extent, for body and mind, for style, for fashion, for display, for luxury, for art, for culture, for diversion and amusement, for education, for charity, for religion. Statistics may in a way record the flow of gold and the trend of prices and wages, of rent and interest. What rule shall measure, what scales shall weigh the wants of the human race, mysterious as well as potent? All other conditions follow and are in large degree created by them.

How the demand for new methods and greater facility and rapidity of locomotion and transportation calls for additions to capital and currency! The savage must go afoot until his needs devise a skiff and the horse comes to help him; then he invents a wagon. His trail is broadened to a road; postriders and stages respond to trade. Railroads, steamboats hurry in course. Great systems are built up. Travel becomes a fashion, a rage. The errand-boy has his bicycle; the

automobile serves traffic and pleasure. Popular excursions carry myriads of men, women and children over thousands of miles, across continents, from sea to sea. Trips around the world take the romance from Sir John Mandeville and Marco Polo and turn Herodotus into commonplace. Men write and talk by wire, or even without wires, over vast distances more freely than by the slow mails of olden days. The Greek runner who fetched the news of the victory of Marathon to Athens, had less than the speed of a snail in comparison.

All this costs money in vast sums increasing in geometric ratio. Railroads must be laid, must be improved, must be extended. Heavier rails are required. Locomotives must be many, more and more, and ever greater in power. Electricity crowds out steam. Ships must cover every ocean; from sloops they expand into floating palaces, their capacity from a dozen passengers and a hundred pounds of freight to the population of a city and provisions for myriads of people. Gold mines must be rich and prolific to maintain such railroad systems and such fleets, with telephones and telegraphs to rival the human tongue in garrulousness. To these are to be added such huge projects as the Panama Canal and the barge canal in the State of New York. These alone will use up a year's product of all the gold mines of the globe.

Man not only has wants; he is a fighting animal. From clubs and bows and arrows, to knives and tomahawks and swords, to muskets and carronades, to Krag-Jorgensen rifles, to Maxim and Krupp cannon,

to vast parks of artillery, to vessels of war like fortresses, he prepares for defense and aggressive war. He strains arsenals and foundries to the utmost that his army and his navy may match those of his rival. His grandest structures go down in ruin in the harbor of Havana, at Manila, before Port Arthur, on the Straits of Korea, while often accident destroys great battleships which war has spared. The galleon of Columbus is hardly more obsolete than the vessels which Nelson led to victory at Trafalgar, or Farragut sailed in triumph to Mobile. A great navy must be always in process of renewal. Dr. Osler's theory that senility creeps upon man before forty, or Admiral Dewey's counsel that only young commanders can handle fleets, applies more intensely to ships themselves. A decade puts them under suspicion. After twenty years they must go to the ship-yards to be rebuilt like the famous Oregon, or be turned aside as curiosities like the old Constitution.

The case is much the same with the merchant marine. Who would choose now to cross the Atlantic in the little vessels that brought the immigrants to Jamestown and Plymouth? The Great Eastern was broken up as too large for use and profit. Now more spacious steamships are common carriers on both great oceans.

Invention destroys as well as constructs. Ancient armor, antique weapons are ornaments, strange but harmless. They may decorate the Tower of London, and the museums of Paris and Berlin. The year is rare in which a new gun does not assert a more horrible power to wound and kill men in masses, or a

novel explosive of tremendous energy does not offer to work havoc on sea and land more secretly, more quickly and more widely. Then the demons of less degree must give way to the greater masters of destruction. Industry devises tools and machinery today to make for tomorrow those which will work faster, cheaper, more efficiently. Furnace and factory go out of fashion some degrees less quickly than styles of dress. The engine gives place to the dynamo. The locomotive which drew the heaviest and most speedy trains, is retired, and young heirs leap to control on the track. The triumphs of yesterday's mechanism are broken up for their metal at the end of the year.

How many mines for how many years will provide gold enough to pay for the wrecks and outcasts in the junk-heaps of the world? And how rapidly these junk-heaps pile up!

Testimony seems to prove that wages and prices have risen very much in Asia and the oriental islands, while interest has fallen there. These results are to be traced in no small degree to the closer relations to the western nations, leading to a higher standard of living and to some changes in the methods of traffic. The adoption of gold either as a legal standard or as a measure of value in less specific form, tends in the Asiatic countries to a modification in the expression of values, rather than to such an evolution as can be set forth just now in statistics. The addition to the number of nations and of people that employ gold in any degree as a basis of industry and trade, builds up to that extent a barrier against an excess of that metal.

Gold, as it is mined and put into human hands, is soon divided between capital and currency. The capital may become fixed in property earning profits, and the dividends may be added to the circulation. The share so invested in many forms undoubtedly becomes greater and greater, and so will swell the volume of production, and unless labor-saving machinery prevents, the demand for labor. The prevalence of altruism creates a sort of fixed capital which is not meant to give returns in dollars and cents. Last year, for example, fair summaries and estimates place the gifts for charity, education and religion in the United States at not much less than the total value of the gold product of the country for the same period. These went into hospitals, church edifices, libraries, museums, schools, colleges and universities. They will all bear fruit, precious and health-giving, but who shall place such grapes, such figs, such wheat and corn in any scales with coin or merchandise?

Certain critics delight in denouncing as idle the gold held in the Treasury of the United States. Of the whole sum of \$764,000,000, gold certificates represent \$525,000,000, and to that extent the metal serves as currency for all uses of the banks and the people. The Treasury readily pays coin for all obligations of the government. The certificates are, however, preferred to the actual coin everywhere in this country, except on the Pacific slope; even by these critics as more convenient and not liable to loss of weight and value. The treasure in the government valuing including the reserve of \$150,000,000 held to redeem the United States notes, is the corner stone of American credit, public

and private. He is a bold financier who will allege that it can in any way be more useful or contribute more to the life and safety of industry and commerce, of production and consumption.

Enterprises like the Siberian railroad, the Cape to Cairo road, the projects in India, the exploitation of Korea and China, draw heavily on the world's resources. The direct cost of the Russian-Japanese war, for which loans were so lavishly made in Europe and the United States, will not be paid by all the bullion that the earth's gold mines can furnish in two years, if in three years. The indirect burdens from that conflict will very likely be twice as much.

Whatever might be the effect on rent if the inflow of gold could work alone, it is hardly worth while to consider. For the growth of our population, the movement of inhabitants in town and country, the development of fresh industries, relative local taxation, and above all the multiplied facilities of locomotion, especially by trolley, set this matter on a novel plane, in strange lights, and render capital and currency less potent factors in their direct bearing. This theme, however, to be treated worthily would exhaust a chapter.

As in all mundane affairs contrary currents contend in the monetary field. The increase in the supply of gold is to offset the cost of war, of armaments on sea and land, of immense projects in many countries of the wants of man, novel, greedy, ever-developing, ever more expansive. It is far from easy to strike a just balance where so much is variable, uncertain, dependent on human whims. He will greatly err who

shall jump at the conclusion that an arithmetical statement can be made that prices will advance in the ratio of the increase in gold, or that wages or dividends can mount on the same rungs, or that interest will fail to be affected as always by industrial and commercial activity and by those moral influences which check or give impetus to adventure.

The real problem presented is: Does the increasing production of gold threaten such an advance in prices, wages and rent and such a change in interest as to justify alarm? It must be admitted that the tendency of that increase, if acting alone, would be to cause a decided rise all along the line, except in interest, and in that item to lead to a fall. The checks, however, are many, various and powerful. The streams and tides and waves of business, turbulent as they are at times, normally seek an equilibrium. The inflow of the yellow metal has put an end to the wild clamor of many million men in this country for a cheaper currency and more of it. Not a few of us were watching lest we were entering into waters too deep and too dark. The flood-tide of currency has not yet, fast as it is rising, reached the line of actual, present peril. A fact which augments the danger also shows the confidence of men whose judgment is worth much, that the supply of gold is not yet too great for use. Notable is it, too, that sage financiers, active in large affairs, take full share in the inflation. For during the past fiscal year an addition of \$60,000,000 was made to the circulating notes of the National banks. The digestion of \$5,000,000 a month of new bank currency proves that our currency does not yet feel overcome and intoxi-

cated by the yellow metal. For the net increase in notes based on bonds in the month of October, 1905, was \$8,249,280.

He who will study these subjects most closely and deeply will be least dogmatic in his predictions. He will be inclined to end his most positive sentence with an interrogation mark. For he will try to estimate justly the contending forces. The clearer his vision the better he will see that a real battle is arrayed between mighty antagonists. He will have his convictions and his desires, yet he will recognize that events are the resultant not of a single force, but of many factors, often subtle and from different quarters. What these factors are which act against the effects of the increase of gold to modify the monetary and industrial and social structure, have been indicated rather than fully described. Sometimes it happens that the fairest and best verdict which can be rendered on a review of evidence is "not proven," and it may be that gold is not so bad a culprit after all.



HORACE WHITE
Ex-Editor New York Evening Post

How Gold Operates

By HORACE WHITE

I AM asked to give my opinion as to the effects of the rapidly increasing supply of gold upon (a) prices, (b) wages, (c) rents, (d) interest, (e) securities, (f) industry, (g) business ethics, (h) politics, (i) society.

The only way in which an increasing supply of gold can affect the prices of commodities is by increasing the demand for them. New gold taken from the earth by the miner is not usually hoarded. It is either expended by him for commodities, or partly expended and partly invested. The part invested is expended for commodities by somebody else. If deposited in a bank it is expended by the person who borrows it from the bank. If invested in a railroad or government bond, it is expended by the seller of the bond. There is no stopping place between the new gold and the commodities—food, clothing and other necessities and luxuries—unless the gold is hoarded. In the latter case it has no more effect on prices than it had before it was taken out of the ground.

prices rise
In short, gold is itself demand for goods, new gold is new demand, an increasing supply of it is an increasing demand, and this causes a rise of prices, other things being equal. Professor Cairnes showed, in a series of essays that have become classical, how

the rise of prices began and gradually spread over the world in response to the new gold discoveries in California and Australia, about the middle of the last century.* His was the first careful analysis of the facts and exposition of the principles governing the phenomena of rising prices due to an increased supply of gold. He showed how the rise took place, first in the localities where the gold was found, how it extended thence to the countries which supplied these localities with goods, and thence to the nations with which these countries traded, until finally all parts of the commercial world felt the influence of the new gold, this influence manifesting itself in every case by an increased demand for goods.

It was shown by statistics that the prices of commodities did not all advance in the same ratio. The increase took effect first upon the articles which the gold producers wanted, articles in most common use; necessities, not luxuries. They wanted food and clothing, mining tools and implements, perhaps liquor, tobacco and playing cards, but they did not want silks and satins, pianos, or pictures by the old masters. The rise in prices manifested itself in the order of the purchasers' most pressing needs.

It was noticed also that these effects of the new gold discoveries were more striking in countries where the credit system was well developed by means of banks than in those which depended mainly upon hand to hand trading. The obvious reason was that in the

*Essays in Political Economy, Theoretical and Applied, by J. E. Cairnes, London, 1873.

Hand
away

former each dollar of new gold became the basis of three or four dollars of credit given to the producing and trading community, while in the latter no such augmentation took place, since each dollar passed for one only. Thus, in the United States and England the effects of the new gold on prices was manifested more promptly and decidedly than in France and Spain, and in all of them more so than in India and China.

The effect of new supplies of gold on wages is similar to that on prices and is closely connected with it. New demands for goods means greater demand for labor and hence higher wages, but the rise in wages is not simultaneous and uniform throughout the industrial world. It follows the same order as the rise in prices of different kinds of goods. The wages of piano makers and silk weavers will not rise so soon as those of sailors, iron foundries and shoemakers.

Wages rise first and most rapidly in the mining districts and more slowly in the countries which receive the new gold in the way of trade. One of the early phenomena in California in the fifties was that large numbers of sailors abandoned their ships as soon as they arrived at San Francisco and betook themselves to the gold fields and became placer miners. The captains were obliged to offer higher wages to get men to navigate their ships. Similarly the farmers in California were compelled to pay more for agricultural labor. House builders had to pay more to carpenters, glaziers, wood cutters, and so on. These were rather glaring illustrations of the effect of new supplies of gold on wages. They were not different in kind but only in degree from the effects which took place in

more distant regions through the medium of trade relations with California. It is within the writer's recollection that there was a considerable exodus of gold seekers from a certain town in Wisconsin in the years 1849 and 1850. These emigrants were of the most hardy and enterprising members of the community and their departure left a vacuum in the labor market at home. Similar movements took place in all parts of the country.

A secondary effect, not so obvious, is that the rise of wages thus occasioned enables the wage earning class to become greater consumers of goods. Their demand is added to that of the gold miners in the market for commodities. But for this secondary effect the market would become glutted as soon as the means of production should have overtaken the new demand of the miners. Thus, the wage earners being much the largest body of consumers of the things they severally produce, steady the market, which would otherwise relapse to its former condition. There is no doubt in my mind, therefore, that new supplies of gold, i. e., a supply exceeding the loss due to abrasion and accident, does tend to an advance of wages. Whether it increases the world's wealth as a whole is more doubtful. It is not an advantage to society to use two dollars to effect its exchanges where one dollar answered the same purpose before. But, it is an advantage to the wage earning class, who are the great majority of all countries, to have steadier employment and better pay. If new gold does not increase the world's wealth as a whole but does increase wages, it follows that persons having fixed incomes, such as holders of gov-

ernment bonds, annuitants and mortgagees, are losers by the same process.

At all events, we should dismiss from our minds the thought that new supplies of gold cause prices to advance by any occult or magical process, or otherwise than through the demand and supply of goods in the market. Many persons argue as though the producers throughout the world, seeing or hearing of a great output of gold in South Africa and in the Klondike and elsewhere, raise the prices of their products accordingly. Of course, no such thing happens.

Rent Rent is the price paid for the use of any particular piece of land. There is always some land that nobody will occupy even as a free gift. There is other land that some persons will occupy as a free gift but will not pay anything for, since its produce will not yield more than the amount that could be obtained with equal effort otherwise. Land that will yield more than this by reason of its fertility or its situation will command an annual rental. Situation is quite as important as fertility and often, as in the case of town and city lots, vastly more so in civilized countries. The chief determining factor of rent is population. Other things being equal, rents are high where population is dense and low where it is scanty. They rise where population is increasing and fall where it is diminishing. It cannot be affirmed that new supplies of gold tend to increase population as a whole. Do they tend to shift it from place to place? We have seen that they do draw it to the gold fields and they may have other like effects in concentrating it in particular places and on particular industries, but such movements would

merely raise rent in some places and lower it in others. I see no reason to suppose that increased supplies of gold have any effect upon rent one way or the other. It should be observed that it is not the mere price paid in money for the occupation of land but the amount of goods—the satisfaction of human wants—that determines the rental value of land. Therefore, doubling the amount of gold in the world would not necessarily raise real rents at all.

Interest is the sum paid for the use of capital available for productive industry, in the operation of which, gold or other money is merely the instrument by which capital is measured and exchanged. Such capital is either fixed, such as buildings, railways and machinery, or circulating, as tools, raw materials, food, domestic animals and store goods of all kinds, which constitute the real "wage fund" of the community. The amount which can be paid for the use of this accumulated stock by persons engaged in active industry depends upon the productiveness of industry, and it varies at different times and places. It is subject to the law of supply and demand. The stock, whether large or small, is at the command of those who have (as it generally is), it is based upon gold and therefore money, whether gold or credit. If it be credit money we may consider it gold.

Now the quantity of gold in the world cannot make the quantity of capital in the world, whether fixed or circulating, either greater or less than it is, at any particular time. Nor can it increase or lessen the productiveness of industry, or the rate of profit, or the security or investments. Therefore it cannot affect

the rate of interest one way or the other. I have never found, in the experience, observations, and reading of a life time, an instance where a new supply of gold from the mines, however large, has caused a reduction of the rate of interest. There may be a momentary lessening of the rate in a case where a particular bank or monetary centre receives a heavy consignment, before a distribution of the new supply from place to place or from country to country can be made through the ordinary channels of commerce. But that is of no more consequence as regards the general rate of interest than the daily changes in the rate for call loans on the Stock Exchange.

If the increasing output of gold does not affect the rate of interest, it cannot affect the price of securities. / The prices of government bonds and other first class securities have been going up instead of down during the past quarter of a century. In other words, the rate of interest on this class of investments has been falling, but not in consequence of the output of gold from the mines. This is due to the increase of wealth in the community and to the competition of buyers seeking absolutely safe investments. The increase of wealth is due to the development of natural resources, not to an increase in the number of counters by which the resulting products are estimated.

My views of the effects of the rapidly increasing output and supply of gold upon industry and society have been indicated by what has gone before. The effects upon business ethics and politics, if any, are beyond my ken. My belief is that they are nil.



Hon. JOHN De WITT WARNER

Ex-Congressman from New York

Some Gold Problems

By HON. JOHN DEWITT WARNER

FOR thirty years past we have had alternating periods of business confidence and business depression; and also a succession of events affecting to an extreme degree the "visible" supply of gold available for currency.

No one contends that the latter series is exclusively responsible for the former. Few believe that they had no effect on each other. Between these is the debatable ground on which many congressional, and at least two presidential, campaigns have been fought; and which, as yet conquered by neither, is claimed by all during the truce (on this issue) of the last few years.

Meanwhile developing conditions of gold production are such as to ensure: First, that the world's supply of gold currency has increased, is increasing, and for some time to come must increase out of all proportion to any growth that can be expected in normal demand therefor. Heretofore we have been too prone to ignore such developments until they met us.

The divisions of the question as proposed—the effect of increasing gold supply on "(a) Prices, (b) Wages, (c) Rents, (d) Interest, (e) Securities, (f) Industry, (g) Business Ethics, (h) Politics, and (i)

Society"—interdependent as they are, suggest a preliminary caution: That is, we must not forget that gold production, the effect of which we are called to predict, is but one of many causes—some of them rapidly growing in proportionate importance—that affect each of the items noted. However correctly, therefore, the effect of greater gold supply upon each of these may be foretold; as to any one this effect may be in fact either masked, accentuated, minimized or reversed by other factors.

In short:—Coined gold is nowhere an independent and absolute currency standard; and is not even approximately so in many cases where it is theoretically such.

To an already large and rapidly increasing extent the market value of gold as currency is so dependent upon relations between other commodities that they, or the resultant of their relations with others (including gold), tend radically to vary the actual standard of exchange from any that can be fixed by calculation of demand for gold as compared with its supply.

But our economic philosophy is based on the assumption that our present currency standard is the resultant of the need of gold to facilitate exchange of property, as compared with the supply available for such purpose. There is, therefore, a normally widening gap between theory and fact—the actual standard ever becoming less exclusively one of gold value, and the theoretical one ever more so.

The presumption is that we have lately passed the point in the world's history toward which economic gravitation has heretofore tended, and at which this

theory was most nearly correct; and that, having now left perihelion, we shall hereafter find our actual course varying more and more from any that can be calculated on the old theory.

Taking up seriatim the several branches of the inquiry proposed:—

(a) Increasing gold product will tend to raise Prices, but to no extent comparable to the resulting increase in gold supply as compared with the apparent demand. This rise in Prices will be comparatively prompt, or accelerated, directly (though not proportionately), as gold production increases. This effect will be most marked with staples of widest use, and of most general import or export throughout the World—such as cotton, iron, wheat, wool, etc.

(b) Wages will tend to rise, but so slowly on the whole, and so far behind prices, that their higher level will be generally fixed as the result of “labor troubles”; which will become so acute as to be effective only after somewhat of forced relief has been had in other directions from the hardships of wage earners—from high prices with low wages. This tendency of wages to rise, and consequent readjustment, will be most prompt in cities.

(c) Rents so largely depend on other factors that, though with tendency to rise, they will do so but slowly in the long run, and this mainly as the “net” of fluctuations—in which high rental rates will be followed by low ones, and vice versa.

(d) Interest rates also are so much more dependent on other considerations that they will be little af-

fects in the long run by increased gold production—though probably more so than rents. On the whole, interest will tend to rise, though as the “net” of fluctuations rather than steadily, or in pace with gold production.

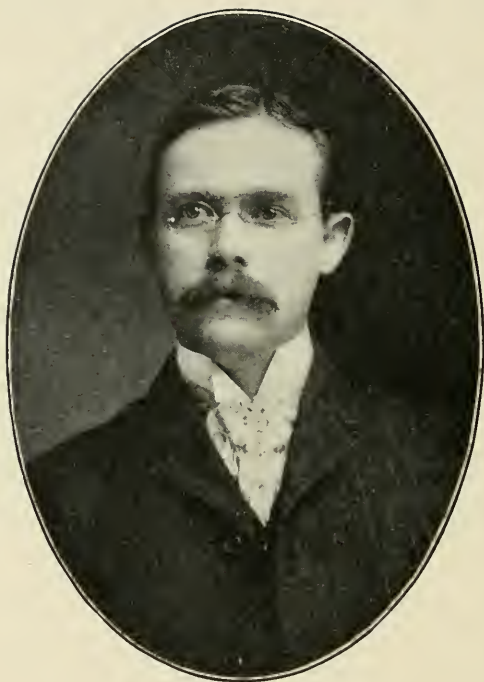
(e) Securities (long term), will be more affected than either of the foregoing. The class of investors in them is that best posted on gold production; most coldly logical in its calculations, and most prompt to exaggerate the effect of this factor as compared with that of others. The tendency will be to lower the price of most securities (as compared with demand assets), in proportion to the length of term they have to run—a process likely at first to be overdone.

(f) The effect on Industry in general will be bad; but, as I believe, too slight to be generally noticeable, in view of causes that will far more than counteract it. In special and local cases, however, the deplorable effects of other readjustments will be greatly increased.

(g) Business Ethics are unfavorably affected by any change in currency standard. For, by falsifying the terms by which commerce reports progress Business is made more of a “gamble” to most men, and more of a scheme to profit by others’ ignorance and imprudence on the part of those who are cool and shrewd enough to profit thereby. Increase of prices is, however, so little more dangerous than decrease that the evil effects on business ethics should be charged to instability of standards rather than to excessive or scanty gold production.

(h) The effect on Politics will be to stir a vague discontent that in itself tends to demoralize—as distinguished from an intelligent perception of wrongs to be righted, that is the mainspring of political reform. The main reason for this will be the comparative slowness with which wages will overtake prices.

(i) The effect on Society will be toward increase in the class of spendthrift parvenus, and increased dependence of the less capable among wage earners. In comparison with other causes working toward the same end, and counteracting forces that are also acting, I cannot, however, believe that any probable increase of gold production is of serious import on this score. And when all is said, the last word should be one of caution not to over-estimate the effect of increased gold supply in any of the directions noted. The counteracting forces are such as in the nature of things will become constantly more effective. There is no danger that the fortunes of humanity or the course of civilization will be seriously affected by any cheapening of gold values.



L. CARROLL ROOT

Ex-Secretary of the Monetary Commission

Effects of the Increasing Supply Upon the Investor

By L. CARROLL ROOT

IT seems to be generally agreed, by those most competent to comment and prophesy thereon, that we are destined to witness a continuance, for some time at least, of the rapid increase in the production of gold which has taken place during the last few years.

The effects upon wages, prices, etc., of this great flood of gold are interesting topics for speculation, and may be watched and studied with profit by our economists and business men. But the direction where the influence of this movement most vitally affects the investor is in relation to the rate of interest.

Gold may now be said to be the monetary standard of the entire world. And if the testimony of metallurgists can be relied upon, the present increased production of this metal will continue, and its influence in cheapening the value of gold in relation to everything else will persist.

If, then, we may reasonably look forward to a period of increasing prices for both commodities and labor as a result of this movement, what effect shall we expect therefrom upon the price of securities? Will the same forces which tend to enhance the price

of commodities also enhance the price of interest-bearing securities and correspondingly reduce the rate of interest to be derived therefrom?

The natural answer would be, Yes. But this is because of an almost universal confusion between money and capital. The depreciation alluded to as in process, or to be expected, is a depreciation of the money standard, and not at all a depreciation of capital. And because it is true that the monetary standard may have a tendency downward or upward in relation to other things, it is also true that interest on money may become something very different from interest on real capital and may be influenced by different forces.

Interest on capital is an economic phenomenon which may, under some circumstances, be considered quite separate from interest on money, or interest on capital expressed in the form of the monetary unit. Interest on capital would exist if the monetary system were absolutely done away with and business carried on solely by some system of barter. And the economic forces which produce interest (that is, which make present goods more valuable than the same goods at some future time), would still prevail and interest would result, as it does now.

In other words, the forces which produce interest on capital operate independently of the monetary system. Assume, for example, that these forces are such as to result in a normal rate of interest of 5% for a certain period of 20 years. This we assume is what the real interest on capital during this period would be,

without regard to the monetary system or any change taking place therein. That is to say, one loaning 100 units of capital (for example, machinery, material and subsistence available for a manufacturing business), will have returned to him each year 5% of his capital, in addition to the return of the whole 100 units at the end of the period. If both borrower and lender were agreed upon these facts a loan might be made, at the rate suggested, based upon the turning over of actual capital in forms as agreed upon and the repayment thereof in similar forms.

But in our modern business world actual capital is not frequently loaned in its concrete forms, but loans are made and expressed in the monetary standard. It therefore becomes a very important question whether or not the monetary standard is going to remain constant during the period in question in relation to the forms of capital contemplated by the parties. Under an economic condition as has been suggested just above, if satisfactory assurance were given to all parties that there would be no change during the 20 years in the relation between the monetary standard and the concrete goods into which the borrower must put his money when he borrows it, and into which the lender when his loan is paid off must again convert his money in order to make a good business use of it himself, both parties will be satisfied to express their loan in the terms of money, and to specify the rate thereon as 5%, being the rate on actual capital which they are both satisfied to contract for.

But if at the outset equally definite assurance were given upon which both parties to the contract

were satisfied to rely, that the monetary unit (for one cause or another), was going to steadily depreciate during the 20 years in question at the rate of 5% per annum in its relation to the economic goods in which both are interested; under such circumstances, is it not clear that a monetary interest rate of substantially 10% per annum will be required in order to properly express, through the medium of a money loan, the intention of the parties that the lender shall have his actual capital returned, together with 5% per annum in addition thereto? For otherwise, if only 5% interest in money were to be agreed upon, the lender would see the principal of his loan depreciated at the end of the first year to such an extent that the interest which he received would not quite restore it to its original value, let alone giving him the net return which was contemplated.

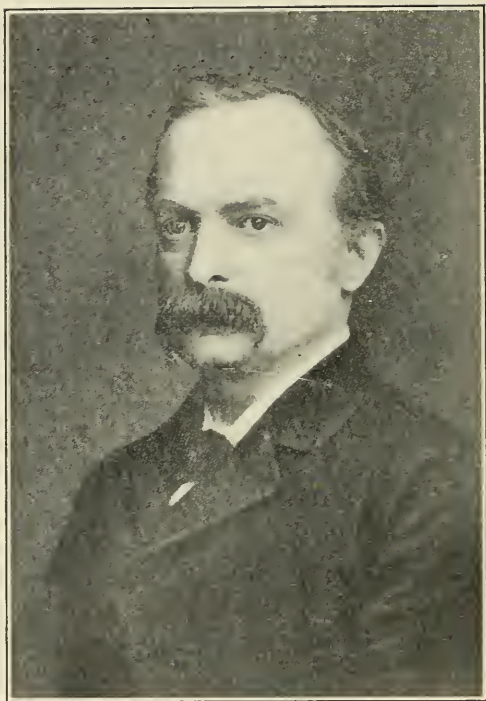
Plainly, if the comparative depreciation of the monetary standard could be foreseen, there is no question but that both borrower and lender would be willing to reckon with it in fixing the money rate of interest which would be the equivalent of the 5% interest on actual capital in contemplation by them and which would be in harmony with the economic conditions assumed. Then, there would be no more difficulty in translating a real interest rate of 5% into a monetary interest rate of, say 10%, than there would be in translating \$5 of United States money into, say, \$10 of Mexican standard.

When the transaction is viewed through the medium of the monetary standard, as is, of course, the

usual case, the effect is the same. For the same economic forces which would have resulted in a normal rate of 5% if the monetary standard had been constant in its relation to capital, will actually tend to produce a normal rate of 10% if the monetary standard is steadily depreciating at 5% a year as compared with other things.

If we have really embarked upon a course of steadily increasing prices, as is predicted by many, the underlying economic forces are surely going to work toward higher interest rates than would otherwise have obtained. Not as the result of the conscious attempt of any individual or any attempt of any individual or any number of individuals to offset what they perceive to be a steady depreciation of the monetary standard, but as the unconscious working out of his own business problems by each business man, on the one hand, and by money lending capitalists, on the other. The manufacturer finds that with rising prices he not only wants to borrow more money but can pay higher interest therefor and still increase his margin of profit. The capitalist, on the other hand, is approached by an unusually large and promising number of opportunities for investment bidding against each other and thus increasing the interest rates.

In view of all the considerations which have been suggested, it does not seem too much to assert that the tendency of the increased production of gold, if it shall continue uninterruptedly for some years, will unquestionably be in the direction of higher interest rates.



ROBERT GOODBODY

More Gold Means Higher "Time" Money and Lower Bond Prices

By ROBERT GOODBODY

THE problem of the effect of a change in the value of gold as expressed in labor and commodities on the rate of interest has attracted much attention of late.

Up to the last two or three years it was practically impossible to interest business men, even bankers, in it, and what thought and discussion there was on the subject was confined to university professors and scientific economists. The ordinary business man, even when possessed of keen intelligence in his calling, argued (and often still argues), about as follows: "Gold is money. If, because of more gold, gold falls in value, money falls, and therefore the rate on money (i. e., interest) falls, too." For the ordinary man is accustomed to use the expression "money" for the rate of interest on money. It is a glaring example of the fallacy called by logicians "*ignoratio elenchi*," for the word money is used in two entirely different senses.

Surely any reader who reflects will agree with me that this has been the usual process of thinking which has prevailed in the business community. In reality the very opposite is true, for it is when gold,

the money standard of the civilized world, is rising in value that interest rates are low, and when, through increasing production, gold is becoming more plentiful, interest rates tend to rise. It is more accurate to say that when the cost of producing gold is falling, gold falls in value and prices of commodities and labor tend to rise, but there is little difference in the two statements, because the cheaper gold can be got, the larger the quantity produced, now that the great proportion of gold comes, not so much from placer mines or from very rich deposits, but from low grade mines, where the gold-bearing strata are of very large extent.

The world is no richer for this production of gold to be used as money. Such gold cannot be eaten or used in the arts. What cheaper production of gold does do is to raise the prices of commodities and labor, and therefore diminish the value of fixed incomes. It adds nothing to the comfort of the world as a whole, but it does transfer property from the great majority of workers to those who buy commodities and equities on speculation. Thus it tends to foster speculation, and therefore to quite an appreciable extent diverts capital and effort from channels which are more, to those less useful to mankind.

What happened in the Rand, now the largest field of gold production? A very large amount of European capital went there first to buy from a few fortunate individuals, and then to build machinery and open the mines. No doubt the part used to buy the property before development was in reality an exchange of capital from one set of people to another, but the part

spent in development was as clear a case of waste of real capital as if it had been spent on war material or on deer parks.

I am inclined to think that the dull trade which England and France have complained of during the last few years was due to this cause; of course, greatly aggravated in the case of England by the expenditure on the war in South Africa, which war itself was brought on by the discovery of gold in the Transvaal. Indeed, I see no reason to doubt that if this waste of capital had not occurred, trade in England would have been as active as it has been in America. American capital had no such drain to bear, and hence the effect on trade of the natural progress of the industrial arts had here free play.

As to the effect of the fall in value of gold on interest, I think it can be mathematically demonstrated that when a fall is going on in the value of the metal which is used as the standard of value, and the nominal prices of other commodities are rising, the result is that the rate of interest on time money tends to be higher compared with that on money lent on call; and conversely it follows that if time money continues to be dearer compared with call money than seems reasonable to trained men of business, the reason is that gold, the standard of value, is falling. Without any abstruse mathematics, this can be seen to be reasonable. Markets tend to accommodate themselves to circumstances, and if the sum of money which is being lent for a period will at the end of that period buy less commodities than when it was lent, it is only natural

that a higher rate of interest should be asked by the lender, and also that the borrower can afford to pay a higher rate than if neither expected the rise in prices.

Take another example. When the owners of fixed incomes find that they can buy less each year with their income, they tend to become dissatisfied, and to try to change into some form of investment which will yield more interest or will advance when gold falls. Hence there arises a tendency to think less of bonds or mortgages, except at a higher rate of interest than satisfied them before. Hence we would expect higher rates on mortgages, and that when bonds fall due they could only be renewed on less advantageous terms.

Now what does financial history tell us? When examining it we must remember that fluctuation in the money standard is only one of the causes that effect the nominal rate of interest. Other obvious ones are political troubles; war, with its waste of capital and sense of insecurity; a reckless use of paper currency; and high prices of food, due to bad harvests. I would point out that there is no fact more clear from the Scotch insurance tables, which are in existence for over a century, than that cycles of years of high prices of wheat were marked by a higher rate of interest on mortgages, as can be seen by consulting McCullagh's Commercial Dictionary. But higher prices for wheat are also an effect of a fall in gold, and the disadvantages of fixed incomes, giving their owners a smaller command of the necessities of life, are equally felt whether the cause is a change in the money standard or something else. The fact of a rise in the rate of

interest, being a characteristic of such periods, is a support I can fairly claim for my theory. There is some difficulty, in using statistics, in separating the effect of other causes than a change in the value of gold. Again, it is comparatively useless to go back farther than the year 1850, for before that date silver was the money standard in many important centers of civilization. At present only one standard exists, and silver is a commodity which rises or falls as gold falls or rises.

The great gold discoveries in California about the year 1848, followed by those in Australia, gave a sufficient production of gold to supply the civilized world, and curiously the contemporary improvement in rapid communication between the different countries by means of railroads and steamships made it necessary that the old practice of having two standards should be abandoned. Therefore, in this short discussion of the subject, I shall only deal with facts since 1850.

What does the table on pages 76-79 show?

We see the great increase in gold production from 1848 to 1855. We then see a sudden relative decline until about 1890, and since then another great increase. We also see that the amount of gold used in the arts was relatively stable all through the period covered by the table, and that, therefore, during the past ten years the amount of gold in sight (i. e., in the great banks and in circulation), has increased at a rate unknown before. I suppose that the comparatively small increase of consumption of gold in the arts during the last few years, when the world has consumed

so much more of other commodities, is due to a change of taste in ornaments; that is, I suppose the world is getting more free from the disposition to indulge in barbaric modes of ornament. We know that between 1870 and 1890 there was a marked tendency to cease to use silver as a money metal. Hence there was what was known as a "scramble" for gold. So keen was this "scramble" that many people tried to persuade the world to go back to bimetallism; but the practical objections were too great, and business men instinctively insisted on having only one standard. Therefore prices of commodities and rates of interest fell and prices of securities bearing a fixed rate of interest rose. This does not show in our table for some years after 1873, because the table is compiled from American (New York), statistics, and our currency was a paper one until 1876. But if anyone will study what happened in England, where there was no government paper money to inflate prices and to complicate conditions, he will find that this theory held substantially well. The table does show a rise in interest rates in New York after 1850, until it attained its maximum in 1873. During the earlier years the increased production of gold was causing this, and afterwards the inflation of our note issues.

With our return to a gold standard the table shows the fall in interest rates and in prices of commodities which theory would lead us to expect. In England there was no complication due to a depreciated currency such as we had in the United States. There gold was the sole standard, and between 1870

and 1890 gold was getting scarcer. The result was a great appreciation in Consols and in gilt-edged securities yielding fixed rates of interest. During this time, also, the rates for time money tended to be as low as, or even often lower than, those for call money. Since the great production of gold of the last ten years began, this has all changed. It may be said that the fall in "gilt-edged" securities was due to the Boer War—though I shall give what seems to me a convincing instance to refute this view; but certainly for the past ten years call money has been almost invariably much cheaper compared with time money than was the case between 1870 and 1895, and of this I know no other explanation than that it was due to the falling value of the standard of value (gold). Now for the convincing instance referred to just now. England has had three big wars since 1850, viz.: the Crimean war, from 1854 to 1856; the Indian Mutiny in 1857-8, and the Boer war, in 1899 to 1901. We are now nearly five years after the end of the Boer war, and Consols have so far shown no real sign of recovering, as they did quickly after the Crimean war.

In 1855 Consols fluctuated between $93\frac{3}{4}$ and $86\frac{1}{4}$, in 1857 between $94\frac{1}{4}$ and $86\frac{1}{2}$. In other words, even the shock of the Indian Mutiny, the great bank failures in England and America, and the suspension of the Bank Act, did not depress Consols within a single year of the end of the Crimean War to the low point of 1885. In 1858 Consols fluctuated between $93\frac{7}{8}$ and $98\frac{3}{4}$, and this in a year during which the Indian Mutiny existed. Note farther that in 1857 the Bank

of England rate of discount was as high as 10%; and in 1858 it was as high as 8%.

I have stated that stocks which bear a fixed rate of interest are the extreme case of "time" money, and, of course, the rates for call money in London can be stated approximately from the Bank of England rate. The Consol market since the end of the Boer war has shown no such recovery, though it has been exposed to no such shocks as the Consol market in 1857-8. It seems, then, to be clear that some force in 1857-8 was making time money cheap compared with call money, which is not acting today. What can we discover from our table of gold production? We find that production began to fall off after 1855. The rich placer deposits of California and Australia becoming less productive. In other words, gold was rising in value in 1857-8, and therefore time money was falling in value as compared with call money.

I am prepared, if it were necessary, to go through the whole period from 1855 to 1892, and show that this feature of the relative value of time to call money was present. Since 1895 an opposite state of affairs has prevailed. Gold tends to fall in value, and we have a low value of call money as compared with time money, and therefore an apparent inclination of English Consols and good bonds to be lower in price than would seem natural if we do not remember this cardinal underlying fact.



JOSEPH F. JOHNSON

Dean of New York University School of Commerce

Influence of the Increasing Supply on Prices and Interest Rates

By JOSEPH F. JOHNSON, PH. D.

PROFESSOR JOSEPH F. JOHNSON, Dean of the New York University School of Commerce, as early as June, 1905, when he addressed the Pennsylvania Bankers' Convention, called the attention of the country to the very great importance of the effects of the increasing output of gold. He then said so well what he had to say upon this subject that he thought it unnecessary to restate his ideas for this Symposium. Here are some extracts from his able address:

Gold is the most interesting of all the metals. . . . Any change in its value in one way or the other affects the welfare of every man and woman in the civilized world. . . . Because gold is used as the standard of prices the average man thinks it is stable in value. All other things may rise or fall in value, but not gold—that, he thinks, is immovable. A very little clear thinking, however, soon convinces one that with respect to its value or exchange power gold is no exception among the metals. Its value depends upon its abundance in relation to the demand for it. Any great increase in its supply must sooner or later force down its value. The reason why the average man fails to see this truth is because gold, being itself the standard of prices, has no price. . . .

During the first fifty years of the Nineteenth Century the total output of both gold and silver was less than two billion dollars, while the output of gold alone in that period was only \$800,000,000, or about \$16,000,000 per annum, whereas in the last fourteen years the output of gold has amounted to nearly three and one-half billion dollars. It is not surprising that very grave questions arise in the minds of thoughtful men with regard to the probable future of the value of gold, and with regard to the effect upon human welfare, which changes in the amount of gold will exert. Can the world absorb \$350,000,000 of new gold?—or must its value fall in order that a place may be made for it in the markets? If its value does fall we know that prices must rise. How will this rise of prices be brought about? Will it be steady and gradual, or will it be sudden and spasmodic? What effect will it have on the business enterprises of men? Will it lead to speculation and panic? Will it have any influence on the rate of interest?

Let us suppose that the banking reserves of the country are increased \$50,000,000 by the deposits of these miners. Will this money lie idle and so have no effect on prices? Certainly not. It will be the most potent part of the new supply. Bankers are the last people in the world to look with complaisance upon a hoard of idle money. Their dividends depend upon their power to make a dollar do twofold or fourfold work. The banks that receive this \$50,000,000 of new money will not rest till they have found borrowers, even though they are obliged to lower their rate of

discount. This \$50,000,000 may be made the basis for an expansion of bank credit to the amount of \$200,000,000 or even \$300,000,000, and the borrowers of this credit will buy goods and labor. Thus this new gold, in the form of currency or credit, will sooner or later increase the demand for various goods and so cause their prices to rise. . . .

An increase in the volume of gold affects first the prices of stocks and bonds, for these are the articles that are bought by the men into whose hands the money first naturally comes. The prices of such speculative commodities as wheat, cotton, corn, steel, etc., are affected almost as quickly; not the prices of all at the same time, but first one, then another. . . . A study of the course of prices during the last few years, when the general level has been lifted some 25% by the great increase in the world's supply of gold, will show that some articles have doubled in price, that others have made only slight advance, and that still others have not changed at all; that wages in some occupations have advanced, and that in others the old rates are still paid. . . .

Business men usually think of the rate of interest as determined entirely by the money situation. They assume that a high rate indicates a need of more money and that a low rate is due to a plethora of money. We have here a confusion of money with capital which has led to mischievous legislation in the past and is today the basis of worthless remedies proposed for the relief of the money market. . . .

It is clear enough that a large increase of gold supply, such as that imagined a few moments ago,

must cause a temporary decline in the bank rate of discount. Apparently it increases the lending power of banks. I say apparently, for, mind you, it does not in any way increase the real capital of the country. The final result will be a rise of prices, and a fall in real purchasing power of the dollars which are loaned by bankers. The first effect of an increasing gold supply—namely, a decline in the rate of interest,—will be only temporary if the supply of gold continues to increase so that prices preserve an upward tendency; for forces soon get to work that tend to lift the rate of interest above the normal. The uneven uplift of prices has a remarkable psychological effect. Few men suspect that their ability to sell goods at high prices is in any way due to an increase in the gold supply. To the business man a dollar is a dollar; he measures his prosperity in dollars; if the number of dollars into which he can convert his property is increasing, he takes it for granted that his wealth is increasing at the same pace. As a result, therefore, of a steady consequent increase of what may be called the “money profits” of business and industry, men in business are eager to extend their operations. Newcomers rush into industry and business from the professional and other fields. Lawyers turn promoters for the development of oil fields or for the construction of street railways. Teachers and physicians abandon their callings and study the A B C of Wall Street. Preachers dabble in real estate or take up the schemes of eager and confident inventors.

All this rush into the industrial field must evidently be accompanied by an increased demand for capital, and bankers who are also affected by the contagion of the time find that they can extend their credit to the utmost limit at an unusually high rate of interest. In other words, the increase in money profits brought about by the maladjustment of prices, arouses an artificial demand for capital and so lifts the rate of interest above its normal level, or that which would have held if prices had not been disturbed. . . .

All this expansion of credit and abnormal demand for capital are usually attended by a confident popular belief that at last a period of good times has arrived which can have no end. Wild speculation ensues in this or that commodity—in real estate, in railroad stocks, in wheat, in cotton—and numerous enterprises are undertaken far in excess of the immediate demand. . . .

If the money supply continues steadily to increase the time will soon come again when men, tempted by the low rate of interest and by restored confidence in the country's resources, will once more make the round of borrowing and producing. In the meantime a new generation comes upon the field, lacking the experience of its elders, again new enterprises are floated, and the cycle of unwise production, speculation and panic is repeated. . . .

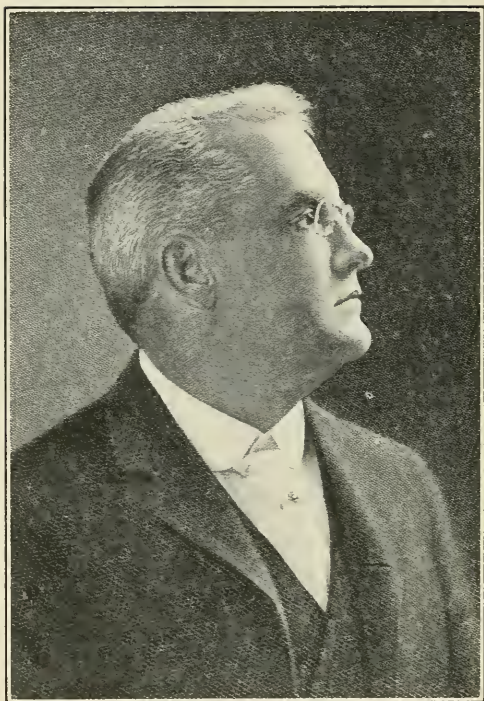
Both reason and experience unite in leading us to expect that the end of the Japanese and Russian war will be followed by a release of credit, another upshoot of prices and a demand for capital that will bring large dividends to bankers all over the gold-using world.

How and when this next period of prosperity will end depends very much upon the power of bankers to remain conservative and to keep their heads.

I am aware that what I have said is in opposition to the common view upon the subject. It is usually taken for granted that the present outpour of gold is going to result in the decline of the rate of interest. This view, I am certain, is a mistaken one. It rests upon a superficial view of the facts. Had we the time I would undertake to show that a decrease in the gold supply or in the money supply, such as this country endured between 1810 and 1840, must tend to keep the rate of interest below the normal. . . .

Will the gold supply of the world continue to increase at the present unprecedented rate? Is the production to be \$400,000,000 in 1905, \$450,000,000 in 1906 and a half a billion in 1907? If such a deluge of gold awaits us it is impossible to escape the conclusion that the purchasing power of gold must suffer a great decline and the civilized world pass through an era of wild speculation in the stocks of corporations and in the prices of commodities. Fortunately there are some good reasons for hoping that no such future is in store for us. Gold mining is an industry in all essential respects like other industries. Its output tends to increase when the value of the product is rising, and to decline when the value of the product is falling. . . .

The gold miner is more interested in prices, though not consciously, than any other producer. He is interested in all prices, for the value of his product varies with every change in the prices of goods in general.



JAMES R. BRANCH
Secretary American Bankers' Association

Gold and Prosperity

By JAMES R. BRANCH

I AM firmly of the opinion that the effect of the rapidly increasing gold supply of the world, which for some years has been added to constantly, owing to the new gold fields which have been discovered from time to time, will increase the prices of commodities, wages and earnings; decreasing interest because there is more money to loan. For the same reason the price of securities will open up new industries and advance the earning capacity of those already established. What its influence on business ethics will be is hard to determine; but if it should eventually do away with the payment of interest on deposits subject to check in banks and trust companies, I think much good will be accomplished. There is evidently an increase all over the world of a socialistic feeling, owing to the enormous fortunes accumulated by the few and the distress and poverty experienced by the many. If the gold supply increases rapidly enough to supply employment for more workers and at better wages, it would possibly retard or stop this increasing feeling of unrest and discontent on the part of the poorer classes, and thus have its effect on politics and society. Owing to the fact, however, that the prices of commodities and necessities of life are apt to advance

in proportion to any increase of wages, I fear that the wages of the wage earner, although larger in amount, will have little, if any more purchasing power than those they have today.

If laws were adopted preventing more than one million, or even five million, dollars being left by will or otherwise to any one individual, the balance to go to the State or government, much would be accomplished for distributing unnecessary enormous accumulated fortunes, and possibly a preventive established for troubles which appear to be arising over the horizon.



GEORGE H. SHIBLEY

President Bureau of Economic Research

The Gold Problem Solved

By GEORGE H. SHIBLEY

WHAT is the probable course of monetary legislation of the United States? This question is timely for not only is there a growing output of gold, but a concurrent inflation of bank currency, due to legislation, accompanied with a proposal from high sources that legislation at the coming session of Congress shall increase the output of paper money.

The extent of the total inflation already affected is from \$21.42 per capita in 1896 to \$31.40 September 1, this year—46½%. All this in nine years! More than 5% yearly. About a billion dollars, or more than twice as much as would have resulted from free silver. And of this increase nearly one-fourth has been caused by currency inflation, due to the Act of March, 1900.

While this paper money inflation has been taking place an opposing tendency and one that is making toward stability in the future standard of value, has been taking place. The ideal standard of value, according to the leading economists, is the multiple standard—the maintenance of such a volume of money in use that the general level of prices of products at wholesale will be kept practically stable.* And

*Some of the reasons why the prices of commodities are taken in measurements of the price level are: (1) They include wages and rent as well as the other factors in production. (2) These factors are the bases of most business contracts. (3) Debtors when repaying loans should receive the benefits of improved methods of production, for dur-

government regulations and laws are rapidly approaching this ideal, as is demonstrated by the following data:

From small beginnings, some fifteen years ago, the United States Government has advanced to where it is measuring, each month, the general level of prices of products at wholesale. It began with the Aldrich Report on Wholesale Prices and Wages, 1893, since which time the scope of the work has been enlarged. During 1901 the Industrial Commission included in its report the price-level measurement by the Bureau of Economic Research, made during 1889-1900; and shortly afterward the U. S. Bureau of Labor began the compilation and regular publication of an index number of general prices. Another department, that of the Treasury, is issuing regularly the changes in the per capita of money in circulation.

Thus the United States government has taken the preliminary steps toward the establishment of the multiple standard. General prices are being measured, likewise the changes in the volume of money in circulation, a factor in determining the general level of prices and a factor that can be controlled absolutely by the laws of Congress, thereby controlling the price level. All that now is required for the complete establishment of the multiple standard is a law abolishing the Secretary of the Treasury's discretionary power as to the volume of money in use, substituting definite

ing the years the debts have existed the creditors have possessed the right to use the improved processes. (4) A falling price level for commodities tends to industrial depression. There is a voluminous literature on the measurement of price levels; see references in *Quarterly Bulletin*, Bureau of Economic Research, July, 1900; also *The Money Question*, pages 27-59, by the writer.

rules; also provision that the volumes of currency to be issued by the national banks shall be such as shall maintain a stable price level.

This ideal is almost met by the declaration in the Republican national platform of 1900, which says: "We favor such monetary legislation as will enable the varying needs of the season and of all sections to be promptly met, in order that trade may be evenly sustained, labor steadily employed, and commerce enlarged."

Here the implication is that the stability in the price level is the ideal. All who publicly discuss the standard of value admit that stability of this character should be the aim, but certain selfish interests are seemingly benefited by a fluctuating standard.

Let us turn to the proposal to abolish the discretionary power of the Secretary of the Treasury, a plan which has met with widespread approval whenever he has announced that the government will relieve a tight money market or will cause a tight one. The following is from an article on "Government Deposits in Bank," in the March Forum, 1900, by Director of the Mint, George E. Roberts:

"Obviously it would be desirable to secure such definite rules for the management of the Treasury as would relieve the Secretary from the necessity of doing something that experience has shown cannot be done without subjecting him to unmerited criticism."

Isn't it likely that this idea will grow? Also the idea that the volume of paper currency that is used in connection with standard money should be gauged to

meet the wants of commerce? that is to say, should not the volume of paper currency be such as to maintain a stable price level?*

In arriving at an answer several points should be borne in mind—

First, that the great countries of the world, except the United States, do maintain a stable money market and stable price level, except as interfered with through the maintenance of a practically fixed volume of gold within the country as a weapon of war as well as a monetary instrument. In England this is accomplished through the Bank of England, which is governed by leading merchants and therefore in the interests of a stable money market and stable price level. No banker can become a member of the governing power of the Bank of England. (See Bagehot's "Lombard Street.") In Germany the maintenance of sta-

*It is possible and practicable for congress to control the volume of paper currency so as to maintain a practically stable price level—a practically stable average for the prices of leading products at wholesale. The measurement is practicable for the government is doing it monthly, as is pointed out above. And the volume of national bank currency (a legal tender between national banks), is a factor in determining the price level, and is controlled by the laws of congress. This is impliedly admitted whenever there is a discussion as to the effect of changes in the volume of bank-note circulation. It follows that congress can keep the price level practically stable if it provides that whenever the demand for money increases so as to tend to raise the price level it shall promptly be met by the issuance of paper currency, and that whenever the demand slackens there shall be a withdrawal of currency. Under such a system if the volume of gold coins should increase faster than the demand for it there would be a permanent retirement of considerable portions of the paper money. The primary gauge in maintaining a practically stable price level would be the interest rate on call money, i. e., the volume of money outside the treasury vaults would be so gauged as to maintain such a bank rate as would be required to produce the desired height of price level. This general policy is pursued in Germany, France and other continental countries. In France, for example, the volume of paper currency on January first each year issued by the Bank of France is 200 to 300 million francs greater than for the preceding month and usually it is soon retired. (Financial Tables, U. S. Monthly Summary, Treasury Department).

bility is through the Bank of Germany, controlled by the imperial chancellor—the government; in France, through the Bank of France, controlled by a joint committee from the government and from the merchants. The supply of paper currency is carefully guarded, for it is a factor in determining the price level.

Secondly, the United States should provide a system that will result in the greatest possible stability. To accomplish this the great speculative banks must be deprived of their power over the price of call money as is the case in England, Germany, France, Austria, Japan and other countries. This can be accomplished by a law of congress declaring for stability in the money market and price level and establishing the necessary machinery for accomplishing the desired result. Owing to the increasing import of gold it will probably be necessary to secure international co-operation for gradually retiring the paper currency.

Thirdly, the benefits to be derived from a practically stable money market and practically stable price level are inestimable:—

(1) It would banish the great industrial depressions, for they have always followed a falling price level. The maintenance of a stable price level would alter conditions.

(2) A general panic for money could not occur. This would greatly benefit the banking capital of the country, as well as other interests.

(3) Business would be brisk year after year; therefore, the general average of interest rates would be higher than under a fluctuating price level.

(4) The amount of bank reserves would be reduced, for banks possessing salable securities would be able to get all the ready money needed at an hour's notice.

(5) Monopoly prices for particular articles would be maintained with less friction.

(6) With industrial depressions banished there would be a lessening of antagonism between nations, for each depression causes the several nations to enact laws against each other in the vain hope of bettering their own conditions.

(7) With trade antagonisms considerably removed the path to international arbitration and international law making will be smoother, thus helping to establish the time "[When] the war drum [throbs] no longer and the battle flags [are] furled in the parliament of man, the federation of the world!"

Such an outline is one view as to the probable courses of monetary legislation.

CONCLUSION.

Conclusion.

The facts and arguments presented in the preceding pages suggest, if they do not establish, the following important conclusions:

1. That both the output and supply of gold are likely to increase rapidly for many years.

2. That, therefore, the value of gold will depreciate as the quantity increases.

3. That this depreciation will be measured by the rise in the average price level.

4. That a rising price level, if long continued, is accompanied by rising or high interest rates.

5. That high interest rates mean low prices for bonds and all other long-time obligations drawing fixed rates of interest, dividends or income.

6. Rising prices increase the cost of materials and of operation and tend to decrease the net profits of all concerns the prices of whose products or services either cannot be advanced at all or are not free to advance rapidly.

7. Rising prices tend to increase the net profits of all concerns that own their own sources of materials and supplies.

8. Rising prices of commodities tend to cause the prices of all tangible property to rise. This includes lands, mines, forests, buildings and improvements.

9. Rising prices of commodities and property tend to increase the values of the securities of corporations holding commodities or property.

10. Rising prices and cost of living necessitate higher money wages, though the rise of wages will follow, at some distance, behind the rise of prices.

11. As rising prices do not mean increased profits to all concerns, many employers will not concede higher wages without strikes.

12. Rising prices and wages, therefore, mean dwindling profits and troublous times in many industries, with complete ruin as the final goal.

13. Because wages will not rise as fast or as much as prices and the cost of living, there will be dissatisfaction and unrest among wage and salary earners.

14. Rising prices of commodities and property encourage speculation in commodities, stocks and real estate and discourage honest industry.

15. Thus rising prices, by diminishing the incomes of "safe" investments in "gilt-edged" bonds and stocks and by increasing the profits of speculators, encourage extravagance, recklessness and thriftlessness.

16. As rising prices decrease the purchasing power of debts, and thus aid debtors at the expense of creditors, they discourage saving and thrift.

17. Rising prices, then, by promoting speculation and extravagance, increase consumption, especially of luxuries, and, therefore, stimulates production.

18. Rising prices, then, result in what is real prosperity for many industries but what is, for a nation

as a whole, artificial or sham prosperity—the result of marking up prices rather than of increasing production.

19. With prices, wages, rates and industries always imperfectly adjusted to the ever depreciating value of gold and with instability and uncertainty throughout the financial world, there cannot but be a great shifting around of values and of titles to property.

20. As this shifting is to the advantage of the debtors—the rich—and to the disadvantage of the creditors—the great middle class—it results in rapidly concentrating wealth in the hands of a comparatively few.

21. For all of these reasons a prolonged period of rapidly rising prices is reasonably certain to become a period of unrest, discontent, agitation, strikes, riots, rebellions and wars.

22. A rapidly depreciating standard of value, then, if long continued, not only produces most important results in the financial, industrial and commercial world, but is likely to result in changes of great consequence in the political, social and religious world.

verified
In view of all the facts, results and possible consequences connected with the increasing output and supply of gold, "The Wall Street Journal" was right when, on December 4, 1906, it said that "No other economic force is at present in operation in the world of more stupendous power than that of gold production."

IN substantiation of the above conclusions a few facts, drawn largely from the articles on the preceding pages, will be cited and discussed briefly:

GOLD PRODUCTION

1. Both the output and supply of gold are likely to increase for many years.

While the future output of gold is, of necessity, unknown and uncertain, there is great unanimity of opinion, among mining experts, on this point. It appears to be generally recognized that, during the last twenty years, the industry of gold mining, or rather of gold production, has been established on a very different and much more certain basis than any previously existing. No longer is the output of gold dependent mainly, or even largely, upon placer mining and the chance finds of "free" gold. The supply of gold, in rock, sand, clay, and water, being inexhaustible, it is now possible, by machinery and metallurgical processes, to extract gold, in paying quantities, from many forms of these vast storehouses. To such an extent is this true that the future supply of gold is even more secure than is that of coal, iron, lumber, wheat or cotton.

Even if prospecting were to stop and attention were to be devoted only to the gold mines and bodies already discovered, and geologically in sight, it is prob-

able that the output of gold would continue to increase for many years. As Mr Selwyn-Brown, a gold mining expert, tells us in his very interesting article, "as the rich surface deposits are being worked out, improvements in mining and metallurgical processes are enabling poorer and poorer deposits to be worked." That is, improvements in "stamp mills," cyanide mills, dredging machines and other gold extracting apparatus and processes are being made so rapidly that it is, every year, becoming profitable to work lower and lower grades of ore, sand and earth. As the grade declines the quantity in sight increases rapidly. In fact there are almost literally mountains of low grade gold ore that can even now be worked profitably. Some of the largest, most productive and most profitable mines of today contain ore averaging less than \$3 and, in some instances, only \$2 of gold per ton.

The supply of such ore being inexhaustible the output depends upon the number and size of the mills employed to extract the gold. It is reasonably certain that, for years to come, the improvements in methods and processes of mining will more than keep pace with both the decline in the quality of the ore and the increase in the cost of mining due to rising prices and wages, occasioned by the depreciation of gold.

In view of all the facts, Mr. Selwyn-Brown's conclusion that "a progressive increase each year may confidently be expected" is conservative. This conclusion, is almost a certainty. The uncertainty lies in the possibility, if not probability, either of discovering many important new mines in the practically unexplored parts of every continent or of making improvements

that will radically reduce the cost of extracting gold. In either case the increase in the output of gold might be not simply arithmetically but geometrically progressive.

THE QUANTITY THEORY OF MONEY

2 and 3. The value of gold will depreciate as the quantity increases and this depreciation will be measured by the rise in the average price level.

The accuracy of these conclusions depends upon the validity of what is generally known as the quantity theory of money. The truthfulness of this theory is not disproved simply because prices do not rise in exact proportion to the increase in the quantity of gold. That is, because prices do not exactly double every time the quantity of gold is doubled. The theory must not be taken too literally. Not only should it be qualified, as Mr. Henry Farquhar suggests, with the proviso "other things being equal"—which they seldom are—but it should be qualified by saying that the theory applies as well, and perhaps better, to gold than to most other commodities.

We do not pretend that doubling or halving the quantity of wheat, cotton, wool or iron, produced will exactly halve or double the prices of these commodities. If, beginning in 1907, two grains of wheat should grow where one grew before we may be sure that the future price of wheat (allowing time for readjustment) would not be just half what it is today—that is 40 cents instead of 80 cents a bushel. "Other things" would interfere.

A radical decline in the price of wheat would cause much more of it and much less of other grains to be consumed. Wheat at 60 cents is, perhaps, cheaper food for hogs and horses than corn at 50 cents a bushel. Hence, the cost of producing corn remaining the same, we would soon be raising as much less corn as we were raising more wheat, with prices at 50 and 60 cents a bushel respectively. But the demand for corn falling off, prices would decline somewhat. Likewise, assuming that the demand for wheat would more than double before the price would decline 50% and that, therefore, the profits of raising wheat would increase, the price of corn lands would fall while those of wheat lands would rise,—the one tending to decrease the cost of raising corn and the other to increase the cost of raising wheat.

For similar reasons, doubling the quantity of cotton, wool, or iron would not result in halving prices. New uses would be developed, especially for wool and iron, that would prevent prices from declining the full 50%. The extent to which the price of any commodity is affected by a change in the supply is determined by the utility of the commodity and by the possible substitutes for it at various prices.

When, however, by custom or decree, we make any one commodity a standard of value for testing all other commodities, we give it a monopoly of this use or function; we give it the exclusive field, make substitutes impossible and make its utility practically infinite for this purpose, regardless of price. We set it off against all other commodities. It, and it alone, occupies one end of the exchange transaction; all other

commodities, in turn, occupy the other end. We do not though, when we make one commodity the standard of value, give this commodity a value equal to the value of all other commodities. We do not put it in one end of the scales and all other commodities in the other end and say that its value must equal the value of all other commodities. We do not, for a moment, assume that the bushel measures in use shall be sufficient in number to equal the capacity of all that they will measure. A bushel is simply a unit of measurement of capacity. Likewise the gold dollar is simply a unit of value by which all values are measured.

The values of all other commodities are determined by comparing the exchange value of certain fixed units of such commodity with the value of a certain fixed unit of the standard-of-value commodity. The result of this comparison is called "price." Price is simply the value of a thing in money. The money or standard of value may be wampum, a beaver skin, a pound of tobacco, $37\frac{1}{4}$ grains of silver, or 23.22 grains of gold. Whatever it is, it measures all other values. It may be one commodity today and another tomorrow. While it is the standard it fixes the values, terms, prices, of all else. Its value becomes the supreme test of all values.

The adjustment is not always complete and perfect. The commercial world, however, is always busy. If the price of any article is too high, that is, if its cost of production is less than is that of other commodities for which it exchanges, economic forces are set at work that will surely result in increasing the quantity of this over-estimated commodity. Soon the supply of

this article will be greater than the demand, at the high price, and the price will decline to, and perhaps below, its normal price, as compared with other commodities. This adjusting force is always at work on all commodities.

5 Needles
The cost of production is the magnetic value pole that attracts all price needles. While price needles are swinging back and forth, in short or long swings, past their magnetic poles, the most of them are substantially true at most times. The law of demand and supply—the quantity theory—is the adjusting force, the balance wheel, that keeps the needle always pointing in the right direction. It matters but little how many or what are the uses of any commodity, it is reasonably safe to conclude that its price is fairly well adjusted to its cost of production, if a considerable period of time be taken. In the case of most perishable commodities, or of commodities consumed from year to year, the average price of a few years is likely to be very close to its true value, that is, to its cost of production. In the case of imperishable commodities, and particularly of the precious metals and stones, of which the stock on hand is very great, the swing of the price needles is slow and long and averages must be taken for several decades, if they are to be a true guide to cost of production. In any case, the exchange values of commodities capable of duplication are always fluctuating around, and are usually near, the cost-of-production points.

A rapid increase in the yearly product of any commodity indicates that its cost of production is below its price. If, as in the case of gold, the increase con-

tinues for twenty years and at an accelerating speed, it is probable that the price is still considerably above the cost of production which is, perhaps, shifting rapidly and becoming cheaper and cheaper. The output of gold, then, is now increasing rapidly because the profits of producing it are, on an average, greater than are the average profits of producing other things. The equilibrium will be restored only when the output and supply of gold are sufficient to maintain a stable price level.

How much more gold will be required and how much higher average prices must go, before the adjustment is perfected, is the problem. It is a most complicated one. So complicated that it is, perhaps, not possible to get all the factors together into a mathematical formula. Assuming that the price of gold is now 25% too high, as compared with the relative cost of production of gold and of all other commodities, the problem may be stated as follows:

“How much will the existing supply of gold have to be increased to raise the average price level 25%?”

Even if we suppose that the gold used for other than monetary purposes has no influence upon prices—which is not entirely true—and that the relative cost of producing gold and other things should remain unchanged, no exact answer is possible. Human nature constitutes an uncertain factor. An allowance must be made for custom and habit in fixing price and in preventing a quick adjustment of values. We see men everywhere continuing to produce things at a loss. Farmers keep on raising corn, or wheat, or cotton in sections of the country where the raising of these pro-

ducts has ceased to be profitable. They keep no books or records and do not know what crops are profitable and what unprofitable. Such action, or inaction, prolongs the adjustment period and prevents the adjustment of prices, possibly until the quantity of gold has been unduly increased. As a result the price needle will, perhaps, swing past its magnetic pole to remain there for many years.

If all men always knew their own interests and promptly adjusted themselves to changing conditions and if there were no possible connection between gold used for monetary purposes and gold used in the arts, the problem would, perhaps, be one of simple proportion. Increasing the quantity of monetary gold 25% would then, in time, increase prices 25%. As the quantity of gold that ever recrosses the line between monetary gold and gold in the arts is relatively small and is not likely to become large under any conditions likely soon to exist, and as the uncertain factors of human nature are usually working on both sides of the equation at the same time and, therefore, largely cancel each other, it is probable that, after making a proper and not very large yearly allowance of gold to offset and prevent the natural decline in prices, due to improved methods of production, we can conclude that prices, in the long run, increase or decrease as the quantity of monetary gold increases or decreases. That is, the law of demand and supply holds good when applied to monetary gold. This means that the quantity theory of money (gold being considered as the only real money) is more nearly true of gold than of almost any other commodity that could be used as money.

This statement is true not simply because gold is the standard of value but partly because there is virtually an unlimited demand for any imperishable commodity that has become the standard of value of the civilized world. With other commodities, used for other than monetary purposes, there is what we may call a saturation point which, when passed, prices decline rapidly. Thus, a certain per capita quantity of sugar, salt or pepper will satisfy ordinary needs and command a fair price. Twice these amounts would, perhaps, reduce prices to one-fourth of what they formerly were. It is because of this fact that unusually big crops of cotton, wheat or peaches sell for less than smaller crops and unusually small crops are often more valuable to producers than are average crops.

There can be no saturation point for gold, when it is the standard of value; no point where the supply satisfies the demand. Before the saturation point is reached, prices rise and the saturation point recedes. Like the bundle of oats on the end of the wagon pole in front of the donkey, the demand for gold always outruns the supply. An increase of supply results in increased prices. With higher prices more gold is needed to measure goods and there is an increased demand that will still further increase the supply. Again prices will rise and call for more gold. Thus the demand for gold grows by what it feeds on and is just as great, after the supply has doubled or quadrupled, as it was before. It is, in fact, greater, because it is accelerated by the artificial demand created by rising prices. Besides, prices will, at times, rise even faster and farther than the cost of gold or the supply on hand

would warrant; just as land values run ahead of increasing population.

The quantity theory of money, then, is substantially true with a precious metal like gold as a standard of value. "Quantity," however, is only an incident, a means by which prices are adjusted to cost of production—the most important factor of the problem. Before there can be a supply of an article there must be a demand for it at a price above its cost of production. First, demand, next cost and then production and supply. Cost is the fulcrum with demand on one end and supply at the other end of the balance. When supply is high demand will be low, at the prices prevailing, and production will decline. When supply is low demand will be high, at the prices prevailing, and production will increase. Cost of production, then, is the most important factor and the one that determines demand, fixes price and restricts supply.

This kind of a "quantity theory" is, then, in reality, not a "quantity theory of money" at all but a "cost-of-production theory of gold" or of any precious metal used primarily as a standard of value. This theory is not deducted from, or sanctioned by, any one or all of the writers of the symposium in this book. Nor is it accepted by many economists. It is, however, not out of harmony with the view of many economists and writers. Thus Ricardo said:

"Gold and silver, like all other commodities, are valuable only in proportion to the quantity of labor necessary to produce them and bring them to market."

Professor Francis A. Walker said:

"No one has ever yet seriously undertaken to show

what determines the value of money—that is, prices—if supply and demand do not.”

This cost-of-production theory apparently harmonizes with the views of Mr. E. J. Shriver in the December, 1906, number of Moody's Magazine. Mr. Shriver holds that “the value of money, like that of any other article, cannot but depend upon the amount of effort required to obtain that of which it is composed—in other words, upon its labor cost.” He says that the universal rise in prices is accounted for by the lower cost of production of gold. Discussing the value of money, he says:

“The value could never be regulated by the quantity in use, so long as the same amount of labor exertion would produce fresh supplies. As a measure of value it never was the coined or printed dollars that counted; it was always the material that entered into them, for paper dollars have had value only for what they represented in metal behind them, modified or discounted often by doubt as to the certainty of obtaining it. As a medium of exchange, the tangible dollars, whether of gold or silver or paper, have passed out of existence, except for the petty transactions, the total number and value of which are too small for the *quantity* of money to have any significance.”

Of course, by labor cost, Mr. Shriver means the total cost of production, capital being considered but an aid to labor. That cost is more important than quantity is evident. Let us suppose that, in 1907, new methods of producing gold, in unlimited quantities and at half the present cost, will be found. Again suppose that production, should jump to \$1,000,000,000, in 1907,

and to \$2,000,000,000, in 1908. Does any one suppose that prices will rise only about 10%, in 1907, and 20% in 1908—the per cent. that would be added to the world's gold supply? As Mr. Logan suggests in his article, would not the world's speculators begin to anticipate coming events by buying up all kinds of commodities and property that would surely appreciate in value? Would they not deal in gold futures just as they now deal in cotton or wheat futures? Would not the coming crop of gold depreciate its value just as the coming crop of wheat, even before it is harvested, depreciates the value of the wheat on hand? Would not, then, average prices rise much faster than the actual quantity of gold in stock would warrant?

Most economists, including some of those who participated in the symposiums in this book, hold substantially that all kinds of money and all kinds of goods affect prices, but that the money in circulation and the goods in exchange have more effect upon prices than have other money and other goods.

Mr. Keeler, Professor Kemmerer and Professor Fisher not only consider the volume of money in circulation—and include credit currency with money—and the volume of goods in exchange, but they make the velocity of circulation a factor in the problem. Professors Fisher and Kemmerer even make a factor of the average rate of exchange of commodities. Mr. Muhleman thinks that “rapidity of circulation of money and rapidity of exchange of commodities are indicators of the status of the demand” and, as such, “they probably have indirect influence upon prices.” Apparently, however, Professor Fisher lacks confidence

in the rapidity of circulation theory and in the effect of inferior kinds of money for his last sentence is:

"In short, prices in gold countries depend chiefly on the amount of business and the amount of gold."

Ex-Congressman A. J. Warner, although he thinks that all forms of money that do the work of gold have the same effect on prices as gold, ridicules the idea that prices are affected either by the rapidity of circulation of money or by "the rapidity with which swapping is done." He holds strictly to the quantity theory and says that "price levels are determined by the available supply of money," that is, by the relation of goods to money.

It certainly does appear ridiculous that if all the dollars in the world were made to circulate ten times where they now circulate once prices would thereby be multiplied by ten. It also appears ridiculous that substitutes for money—everything from greenbacks and bank notes to pay scrip and poker chips—should have the same effect upon prices as has gold itself. All derive their value from gold and are in some way and form redeemable in gold. The values of each and all go up or down with gold. They are, in reality, only promises to pay gold or something else that is acceptable in lieu of so much gold. All are reducible to gold or to terms of gold. Gold is the only money of ultimate redemption; the only kind of money that has no credit fiat in it; the only kind that is worth as much without its stamp as with it; the only kind that has value strictly according to the bullion or material in it.

How strange, then, that, simply by multiplying

make-believe dollars, shadows of real dollars, we can change the value of genuine gold dollars! Whether we pay in bank notes, bank checks, ordinary promissory notes, "I. O. U.'s" or poker chips, we really do not pay at all but, instead, through some kind of a promise, suspend payment, or rather, offset one payment against another. If, as is often the case, our creditor accepts bank notes and checks, because he can pass them on to his creditors, the final payment is only further suspended while the "promise money" performs some work in cancellation that it can perform easier than can money of ultimate redemption, which must have real value and an appreciable weight. Why carry and cart real gold around to settle 100 debts when 98 of them can, by bookkeeping in clearing houses, banks, stores and shops, be made to cancel each other. Do goods or dollars lose or gain appreciably in value because they circulate or exchange infrequently rather than frequently? Does the value of horses appreciate according to the number of times they are swapped?

Goods have been, and can again be, exchanged by barter. It is a very uneconomic process. The device of a common measure or standard of value as a medium of exchange is much more economic. But most economic of all, in the nine-tenths of our transactions where it can be used, is this bookkeeping or cancelling-off process. Exchange by means of gold is, perhaps, 10% cheaper than barter. Exchange by bookkeeping devices is, perhaps, 1% cheaper than by transference of actual gold. It seems safe to conclude that it is only within these limits, and practically only with-

in the limits of saving by bookkeeping devices, that the value of gold money can be changed by the substitution of bank notes and credit currency for gold. The abolition of these forms of money could not add more than say 5% to the value of gold for less than 5 cents per dollar would pay the cost of transporting gold so quickly from one place to another that it would actually settle ten debts where it now settles one.

As this theory is, perhaps, new, it may be further and negatively explained by saying that if we should penalize the use of bank notes and checks and other forms of currency to the extent of 1%, we would almost prohibit the use of substitute money and would drive people to the use of actual gold money, in nearly all transactions where paper currency is now used. Then, if we should penalize the use of gold by 10% we would drive people back to barter in some form. That is, rather than pay a fine of 10%, they would make nine-tenths of their exchanges without money of any kind, just as country peddlers now often give so many pounds of sugar, rice, coffee or starch, or so many yards of calico or sheetings, in exchange for so many dozen eggs or pounds of butter. It is safe to say that the check stamp tax reduced the use of checks, for less than \$5 payments, by 50% and, for less than \$1 payments, by 75%. This tax averaged less than 1% on such transactions. If a 10-cent stamp were required on every dollar of money of any kind, every time money was used, it is probable that money would almost cease to be used. That is, money in most exchanges is a labor-saving device to the extent of not more than 10%. It would, of course, greatly incon-

venience us to return to barter and we would not, with such a tax, make half as many exchanges, either with or without money, as we now make. Wall Street transactions would probably decline 90 or 99%.

On an average commodities are now, perhaps, exchanged three times on their way from producer to consumer. A 2% money tax would probably reduce the exchanges made with money 33%; a 5% tax, 67%, and a 10% tax, 90%. On this supposition, it is obvious that the use of money, in any and every form, can add only about 10% to the value (price) of goods and that the use of notes and checks can influence prices only to the extent of 1%. More than this price, the commercial world will not pay for the privilege of using money. Incidentally, it may be mentioned that this 10% appears to fix the limit of control or monopoly that the "money power" possesses. If it could corner all of the gold on earth, as "Coin" Harvey feared it was doing, it could only "hold us up" for 10%, and for only 2 or 3%, in most transactions. Our tariff trusts would not look at 10% privileges. The most of them demand and get the privilege of charging us from 20 to 200% more than competing goods sell for outside of our tariff walls.

It is true, as we have seen and as Professor Laughlin, one of the great opponents of the quantity theory asserts, that "no very great quantity of gold is needed—a quantity which bears no definite relation whatever to the amount of the community's transactions." This fact, however, as has been shown, does not mean that the value of a gold dollar in exchange can get very far from the value of the bullion in it, as determined by the

cost of production which, ordinarily, is roughly expressed by the supply of gold above ground. Professor Laughlin expresses the opinion that it is as absurd to suppose that an increase in gold will affect the prices and stimulate industry as that the multiplication of railway cars will stimulate commerce. At the present moment the multiplication of cars and tracks in the west would greatly stimulate commerce. The cases, however, are not parallel. The quantity of goods to be transported does not shrink and swell with the number of cars to move them, as does the aggregate price of goods with the number of dollars to measure them. We would come nearer to obtaining the parallel if we should say that we would double the car loads of goods to be transported if they made the cars only half as large and had twice as many of them.

The Hon. George E. Roberts, director of the Mint, exposes the error of Professor Laughlin when he "speaks of the monetary demand for gold as though it were a fixed demand which could be satisfied, and being satisfied, could take no more." Mr. Roberts says:

"This is an error. The demand for gold at a given level of prices may be satisfied, but with open mints new supplies have a power to force their way into monetary use by diluting and lowering the value of the whole stock, thus forcing a higher level of prices. This is the essence of the quantity theory. The precise method by which it will make a place for itself in monetary use may be easily shown."

Mr. Horace White shows us clearly how new gold makes a place for itself and how, in doing so, it operates to raise prices.

In view of all the facts, it is reasonably safe to conclude, even against the authority of many leading economists and with the full sanction of but few of our living economists, that the quantity theory of money—gold alone being real money—is substantially true, and that prices are affected in direct ratio as to the quantity of gold. We must not, however, forget that the natural course of prices is downward and that a part of the increasing supply of gold goes to offset this decline. Otherwise the increase causes prices to advance.

That prices have advanced very materially, during periods of great gold production, there is no question. Professors Jevons and Cairns and Messrs. Tooke and Newmarch credited the rise from 1850 to 1855 (22% in the United States) to the gold discoveries in California and Australia and the depreciation of gold caused by the increased supply (or lowered cost of production).

The recent great rise in prices began in 1896 or 1897. The rise in this country, according to the Dun's index numbers, from July 1, 1897, to December 1, 1906, was 49.3% (from \$72,455, July 1, 1897, to \$108,172 December 1, 1906). According to Bradstreet's index numbers the rise for the same period was 52%, though it exceeded 55%, from July 1, 1896, to December 1, 1906. Comparing Dun's average for the year 1897, (\$75,502) with his December 1, 1906, figures there has been a rise of 43.3%. In England the rise began in 1895. In February, 1905, Sauerbeck's index numbers stood at 60.0. On November 1, 1906, it was 78.6, showing a rise of 31%. From the average for 1896 (61) to November 1, 1906, there was a rise of 29%. Apparently, then, prices

have risen about 30%, in England, and 50%, in this country, from the low points of about ten years ago. As there are interfering factors in this country—notably the tariff and the trusts—it is probable that the rise that can be fairly credited to the depreciation of gold is about 30%, or an average of 3% a year.

4. High interest rates follow rising prices.

So much has been said on this subject on previous pages that but little need be added here. When prices are rising rapidly—say at the rate of 5% a year, as at present in this country—there is a great demand for money to invest in property which is appreciating in value and to produce the things men want to buy, while they are relatively cheap—in the opinions of purchasers. Production is stimulated and active and those who are benefiting by the rise in prices become great consumers of goods. Everybody is busy at what appears to be rising wages and salaries. Hence all spend freely and the game goes merrily on. Orders are placed far in advance of actual needs; mills and factories cannot produce fast enough; they are being extended and enlarged as rapidly as possible; new ones are being built—all of which makes more work for all; railroads are unable to transport the goods offered and are increasing their rolling stock, trackage and terminal facilities, as rapidly as the material and labor market will permit; merchants can sell goods as fast as they can obtain them and, as they gain rather than lose by carrying goods in stock, do not hesitate to order liberally at market prices; house builders are active for houses are rising in value and purchasers are anxious to buy early and get as much benefit as possible from

the rise; lumbermen, brickmakers, glass, nail, paint, carpet, stove and furnace makers, carpenters, masons, plumbers and painters are all busy: farmers are getting higher prices for their products and are building new houses, barns and fences; they are also spending freely, especially for pianos, carriages and automobiles; land is appreciating in value and farmers are getting hold of all the land they can carry, often mortgaging their holdings to get more money to buy more land; real estate speculators are doing likewise in the city; bankers are loaning freely at high rates and are rapidly growing rich; nearly everybody is either growing or feeling rich; theatres and other amusement places are well patronized; lawyers, doctors and other professional men are well employed; marriages are numerous; the birth and death rates are high, to the benefit of doctors, nurses, coffin makers and undertakers; almost everywhere industry is growing, business is active and credit is being extended.

These are normal conditions during prolonged periods of rising prices, or at least during the first decade or two of them. Of course human nature will not stand the strain of too much prosperity and men will often over-speculate and get so far ahead of their means, and of the economic "procession," that their unsound structures will sometimes break down and prices, industry and speculation will halt, until economic conditions catch up. At such periods—likely to be comparatively short, if prices are tending rapidly upwards—many men who have become too reckless in speculation or too extravagant in living lose titles to property. Soon, however, the wheels of industry will

again begin to turn, confidence will be restored and all who survived the "halt" in business will soon again be on the highway to wealth. Capital will soon be in as great demand as ever and prices and interest rates, after a temporary decline, will proceed on their upward course.

But there is another reason why interest rates should be high when prices are rising. When money is shrinking in value interest rates should be high to make up, or partly make up, the losses on the principals of loans. To illustrate: suppose that prices are rising 10% a year. This means that the purchasing power of money is declining about 10% a year. Suppose, then, that \$100 were loaned for one year at 5%. At the end of the year the lender would have \$105; but with this \$105 he could buy only about as much as he could have bought with \$95, at the beginning of the year. In reality, he has received no interest at all but has, instead, paid \$5 to the man for holding his \$100. The man with money to loan cannot afford to do business in this way. He is usually as wise as are his neighbors and fully able to protect his own interests and to get all his money is worth, either by buying real property, investing in bonds and stock or by loaning on notes or on call.

Besides, economic conditions are such as to make it easy for him to get high rates. As a matter of fact, while the profits of money lenders—bankers and their depositors, etc.—will fall behind, during the first few years of rising prices, they will soon be as high, and perhaps a little higher, than the average of profits in other industries. Thus, at the present time, after ten

years of rising prices, banker's profits, in Europe and America and probably elsewhere, are greater than ever before. They will probably continue high for some time after other profits begin to decline.

Of course money interest is not the same as real, or commodity, interest. Interest is so seldom paid "in kind" that most of us think of interest only in terms of money. Economic conditions tend to maintain the natural or commodity interest at a normal rate and to overcome, or partially overcome, fluctuations in the money rate, due to appreciation or depreciation of the money itself. Natural conditions, then, tend to equalize profits in various industries, at least of all who have savings and accumulations.

This new theory of money rates is accepted and explained so well by Professors Fisher and Clark, and Messrs. Root and Goodbody, that further explanation here is unnecessary. It has also been discussed at some length in the "Introduction." The fact that money rates are high, when prices are rising, is admitted by Messrs. Vanderlip and Warner and by Professor Johnson, while Mr. Vanderlip and Professor Johnson make clear some of the practical reasons therefor. Mr. White thinks that more dollars or fewer dollars have no material effect upon interest rates while Messrs. Roberts and Branch affirm that more money means lower interest rates.

The tables of interest rates presented by Professor Fisher and the course of interest rates, as shown by the tables and charts, indicates clearly that money rates tend to rise and fall with prices. We have seen that wholesale prices in the United States have risen

about 50% during the last 10 years, about 30%, or 3% a year, of which is probably due to the depreciation of gold. From 1897 to 1906, inclusive, the interest rate rose from 3.7% to 5.7%. If the normal rate of interest is 4% the average rate in 1906 was nearly 2% above normal. That would mean that money lenders were getting rather more than half of the benefits from rising prices. By the end of 1906, with rates averaging about 7%, the money lender was taking all the benefits. When this condition exists not only speculation but legitimate industry refuses to proceed, until lower rates prevail. It is, therefore, fair to assume that money rates cannot be maintained, for more than a few months at a time, much above 6% without bringing about a reaction in business. Of course, if the price level should begin to rise more rapidly a higher rate of interest might be maintained. While it is improbable that time money will average much below 6%, for any year in the near future, it is also improbable that it will average much above this rate.

While discussing this subject mention should be made of the somewhat remarkable prediction made in 1889, by Mr. Charlton T. Lewis. In his paper on "The Normal Rate of Interest," read before the Actuarial Society of America in October, 1899, he made the following prophesy:

"The evidence is strong that the tide has turned, and that the industrial and commercial experiences of half a century ago are about to recur on a vaster scale."

He holds that interest rates rise and fall with the tide of general business and that, in fact, the profits of

business fix the rate of interest. He asserts, though, that the returns from capital invested for interest average much higher than do those from capital invested in production enterprises. He says the hopes of future profit on the part of "sanguine adventurers in industry" are so seldom realized that it is an "economic law" that "the rate of interest under all fluctuations, maintains a level materially higher than the average increase of capital."

Dr. Lewis said that there are small and large fluctuations in interest rates, the smaller ones affecting call rates, mainly, and the larger ones time money rates. Each movement is "much disturbed by local and temporary influences, especially by wars, legislation and commercial crisis. Yet each can be traced with distinctness, on large averages, as an event in universal history." Interest rates, he said, fell "throughout christendom" for 30 years after 1815; then rose for more than 25 years; then declined from 1872 to 1897. He prophesied that "history will date the turn of the great tide in the year 1897" and that "a conservative provisional estimate of the permanent average yield to be expected hereafter from invested capital for many years would perhaps fix it at about 5%."

He repudiated the theory that "abundance of money in itself makes interest low" and said that "the most marked and general rise of rates ever known was in progress for the 20 years after the discoveries in California and Australia." He also repudiated the theory that "increased wealth and economic progress of themselves lower interest rates." "All experience," he said, "proves that the demand for capital finds its

supreme stimulus in the expectation of productiveness. This expectation is excited chiefly by discovery and invention." Believing that the drowsy period of industry ended in 1895 to 1897 and that a new era of invention and enterprise then began, he predicted that "if the world's peace is maintained, there is not in prospect any check to the gradual rise of interest."

Dr. Lewis did not discuss the causes that produce industrial activity and inactivity and, apparently, did not see clearly the connection between prices of commodities and profits or between prices and changes in the standard of value. Nowhere is there a suggestion that interest rates (money rates) are affected by either small or great changes in the standard of value. His conclusions were based entirely upon what he believed to be an economic law of periodicity in industry. Nowhere is there a suggestion that the great changes that occurred about 1850 and about 1896 were the result of increasing supplies of gold.

Had space permitted liberal extracts from this and another paper of Dr. Lewis on interest rates would have been printed in an appendix to this book. The prescribed limit of the book has already been reached.

The following table, giving the average rates of interest paid by "commercial borrowers" in different cities, is from the Boston News Bureau of January 30, 1907:

INTEREST RATES FOR 1906

	% 1st quarter	% 2d quarter	% 3d quarter	% 4th quarter	Av. for year
Baltimore.....	5.45	5.45	5.625	5.875	5.60
Boston.....	5.55	5.55	5.75	5.95	5.70
Chicago.....	5.20	5.35	5.55	6.70	5.70
Cincinnati.....	5.25	5.50	5.75	6.00	5.625
Detroit.....	5.45	5.70	5.30	5.35	5.45
Los Angeles.....	5.25	5.75	5.80	6.60	5.85
New Orleans.....	6.00	6.125	6.375	7.00	6.375
New York.....	4.955	5.152	5.597	6.946	5.655
Philadelphia.....	5.75	5.75	6.00	6.00	5.875
Seattle.....	7.00	7.00	7.00	7.00	7.00
St. Louis.....	5.50	5.55	5.65	6.00	5.675
Average.....	5.575	5.717	5.854	6.311	5.864

5. High interest rates mean low prices for bonds.

With money rates continually above 5% and averaging nearly 6%, most men who have surplus money will not keep it invested in bonds or other obligations drawing fixed and low rates of interest, dividends or income. If they have money invested in this way they will, when they realize that rates are rising and are likely to be high for a long time, withdraw from fixed investments, where they realize only from 3 to 5%, and reinvest in stocks or titles to property that will participate in advancing prices and that promise a net return of 6% or more.

Another reason why they will be dissatisfied with yields of only 3 or 4% comes from the fact that, when prices are rising at the rate of 5% a year and the purchasing power of money is, therefore, decreasing 5% a year, an investor is really losing more on the principal of his investment than he is gaining in interest or dividends. He cannot, then, when prices are rising, afford

to invest at as low rates as when prices are stable or falling. Nor will he have to do so. Opportunities for greater income will present themselves on all sides. Gradually investors will drop their low-rate investments to invest in titles and property yielding high rates.

This is, in fact, just what investors have been doing for five or ten years. This is why high-grade bonds and stocks all over the world have been declining, while the prices of low-grade bonds have changed but little and the prices of low-grade stocks have risen rapidly. What have heretofore been considered gilt-edge securities and perfectly safe investments have, in fact, proven to be the most unsafe of all; while many low-grade stocks and bonds have not only proven safe, because there has been no shrinkage in values, but have, in many cases, both advanced in price and returned handsome incomes.

Gradually but surely, during the past few years, the rate of income on bonds, mortgages and preferred stocks has been rising. Where the normal rate on government and municipal bonds was less than 3%, a few years ago, it is now fully 4%. It would undoubtedly be above 5% were not many classes of investors compelled to invest in certain kinds of securities. Perhaps one-third of all money invested is restricted in this way. Savings banks, insurance companies and many trustees, etc., can invest only in well-tested high-grade securities. For this reason the process of adjustment to higher interest and income rates is very slow. It is, however, none the less sure. By shrinkage in prices of old bonds and by higher rates of inter-

est on new bonds, mortgages and preferred stocks, the readjustment will, in time, be complete.

That the prices of bonds are declining all over the world is beyond question. Very few, however, realize the extent of the decline, or that the greatest decline has been in the highest-grade bonds.

Take some of the world's government bonds! British consols have long been considered "the investment index of the world." They have declined from 114 to 86 in ten years. After allowing for the change in the rate of interest from $2\frac{3}{4}$ to $2\frac{1}{2}\%$ the decline is over 20 points, or about 2% a year. This loss has nearly equaled the income from these bonds during the last eight or ten years. Thus the investor has really given back, in loss of purchasing power, nearly all he has taken from Great Britain in interest.

The following table of bonds, either issued or guaranteed by the British Government, is from Moody's Magazine of October, 1906. These bonds constitute what is termed the "gilt-edged market" and comprise all securities in which trustees may legally invest the funds committed to their charge. The quoted prices are for about September 20, of the years mentioned.

PRICES OF BRITISH INVESTMENT BONDS.

	£	1906.	1905.	1904.	Highest in 1896
British Consols.....	2½	86½	89½	88½	*113¾
Met. Consols.....	3½	102	104	104½	128¾
London County.....	3	88½	94½	93	128¾
Leeds.....	4	108	109	111½	130½
Liverpool.....	3½	107	109	109	144¾
Manchester.....	4	123	128¾	124¾	159
New South Wales.....	3½	100½	100	96	112½
Queensland.....	3½	99½	99	96	111½
Canada.....	3	98½	100½	97	107¾
Cape.....	3½	97	98	95	120
Lon. & N. Western.....	3	93	96	95	124¾
Midland.....	2½	76	79	78	†124¾
Great Western.....	4	123	127	123½	164
Average.....	3.3	100.2	101.8	100.9	128.4

* Then 2¾% † Then 3%

Thus these 13 British bonds, supposedly the safest and least speculative of all securities, have declined an average of over 28 points in 10 years. Considering incomes and present prices, the unfortunate investors in these bonds have not only received less than 1% on their investments, during the last ten years, but, should they sell their bonds, they would find that the proceeds have lost 30% of the purchasing power of a similar amount 10 years ago. Altogether, they have suffered a net loss, over incomes, of more than 20%, or over 2% a year.

The bonds of other European countries have declined almost as much, and those of Russia even more, than have those of Great Britain. Nearly all are now at or near bottom prices and are falling. German Imperial 3's declined from 91.50, June 30, 1903, to 88.10,

May 10, 1906. French rentes (3's) declined over 5% since 1901. Our own government bonds have declined comparatively little because they are given special privileges in connection with our bank note currency that makes them sell at artificial and unnatural prices for bonds.

The shrinkage in the prices of municipal bonds has been remarkable, during the last few years. Thus, as recently as 1900, New York City issued 3%, 40-year bonds and sold them at a premium. From 1901 to 1905, it issued only 3½% bonds. Its last issue, in 1905, was sold ostensibly at par, but really considerably below par, when the revenue bond bonus that went with the syndicate bid is allowed for. The 1906 issues were all at 4% and the last ones were sold close to a 4% basis. On February 1, 1907, \$30,000,000 of 4's were sold at the smallest possible premium, and short-term 4's received no bids.

Other American cities have had a similar or worse experience. Many offers of 4% bonds have found no bidders. This decline is in no way due to lack of confidence in the ability of our cities to meet their financial obligations. The revenue resources of our cities are growing even more rapidly than are their obligations. Their credit was never better. The decline is due entirely to the changed conditions which have resulted in higher earnings and interest rates. Before there can be a great market for bonds, their incomes must approach a parity with the incomes and earnings from other investments.

The prices of the bonds of railroads, street railways, gas, electric light and telephone, telegraph and

express companies have generally declined, during the last few years, and this notwithstanding the very remarkable increase in the earnings and assets of these companies. Of course income, convertible and other bonds that may, in some way, participate in profits are not considered in the category of regular bonds.

Similar statements can be made as to the prices of bonds of manufacturing concerns and as to the assets and earnings of these and other industrial corporations, except that, as a rule, their earnings have increased even faster than have those of railroads and other public service corporations.

The following tables of statistics of bonds and stocks show the general trend of prices from November, 1896, to November, 1906:

BOND PRICES

Table of prices of all important bonds actively traded in on the New York Stock Exchange, on which the full rate of interest has been continuously paid during the last ten years, or since first issued. All prices are flat and are for November 1 of each year, or as nearly as possible to this date.

RAILROAD	1896	1901	1905	1906	% Decrease or Increase Since		
					1905	1901	1896
Atch., Top. & S. Fe gen. 4s. 1995	76½	103	102¾	100¾	- 1.9	- 2.2	+31.7
Balt. & Ohio prior lien 3½s. 1925	(b)	96¾	95¾	94¾	- 1.0	- 2.1	.....
First 4s 1948	(b)	102½	103	101¼	- 1.7	- 1.2	.....
Cent. of Georgia cons. 5s. 1945	91	105	116½	111¼	- 4.6	+ 6.0	+22.3
Cent. of New Jersey gen 5s. 1987	112	131	134¾	128	- 5.0	- 2.3	+14.3
Cent. Pacific 1st ref. gu. 4s. 1949	(c)	102½	101¼	99¾	- 1.4	- 2.6	.....
Chesa. & Ohio 1st cons. 5s. 1939	107½	121¾	118¼	118½	+ 0.2	- 2.7	+10.2
General 4½s 1992	70½	107	108½	105¼	- 3.0	- 1.6	+49.3
C. & Alton Ry. 1st lien 3½s. 1950	(d)	85	81¼	78½	- 3.4	- 7.6	.....
Chic., Burl. & Quincy—							
Illinois Div. 1st 3½s. 1949	(c)	102¾	96½	93½	- 3.1	- 9.1	.....
Nebraska Ext. 4s. 1927	86¼	110	105¼	103½	- 1.7	- 5.9	+20.0
Jt. 4s (Gt. No.-No. Pac.) 1921	(e)	98¾	102¼	99¾	- 2.4	+ 1.0	.....
Chic. & E. Ill. gen. con. & 1st 5s 1937	94	122	121¾	119	- 2.3	- 2.5	+26.6
Chicago & Erie 1st 5s. 1982	107	123½	122¾	119¼	- 3.0	- 3.1	+11.4
Chic., Mil. & St. Paul gen. 4s, Ser. A. 1989	93½	111	111	108½	- 2.3	- 2.3	+16.0
Chic. & Northwn. gen. 3½s. 1987	(a)	111	101	96¼	- 4.2	-12.8	.....
Chic., R. I. & P. Ry. gen. 4s. 1988	(b)	106¾	105¾	102½	- 3.4	- 4.3	.....
C., St. P., M. & O. cons. 6s. 1930	123¾	140¼	138½	133	- 3.7	- 5.2	+ 7.5
Cl., C., & St. L. gen. 4s. 1993	88	104½	103¾	102½	- 1.2	- 1.9	+16.5
Colorado Midland 1st 4s. 1947	(a)	81	73½	74	+ 0.7	- 8.6	.....
Colo. & Southern 1st 4s. 1929	(c)	88¼	94¼	92	- 2.4	- 4.2	.....
Denv. & Rio Gr. 1st cons. 4s. 1936	86	103	101¾	99	- 2.7	- 3.9	+15.0
Erie 1st cons. prior 4s. 1996	89½	99½	102½	99¾	- 2.3	+ 0.6	+11.5
Hocking Val. 1st cons. 4½s. 1999	(c)	107½	111½	106	- 4.6	- 1.0	.....
Illinois Central 1st 4s. 1951	110	115½	111	109½	- 1.4	- 5.2	- 0.5
First 3½s 1951	104	106	102¾	100	- 2.7	- 5.7	- 3.8

RAILROAD	1896	1901	1905	1906	% Decrease or Increase Since		
					1905	1901	1896
Int. & Gt. Northern 1st 6s..1919	115	125½	122½	116	- 5.3	- 7.6	+ 0.9
Iowa Central 1st 5s.....1938	94½	117¾	117	109	- 6.8	- 7.4	+15.3
Kan. City Southern 1st 3s..1950	(d)	68¾	72¾	71¼	- 1.6	+ 3.6	.....
Lake Erie & Western 1st 5s.1937	114½	121½	119	115	- 3.4	- 5.3	+ 0.4
Lake Sh. & M. So. 1st 3½s.1997	(a)	110¼	102½	96	- 6.3	-12.9	.....
Lehigh Val. of N. Y. 1st gu. 4½s 1940	99¼	110½	111¾	109¼	- 2.2	- 1.1	+10.1
Long Island gen. 4s.....1938	90	102¾	101½	99¾	- 1.8	- 2.9	+10.8
Unifed 4s 1949	(c)	98½	100½	95¾	- 4.6	- 2.6	.....
Louisville & Nashv. gen. 6s.1930	113	119¾	121½	118	- 2.9	- 1.5	+ 4.4
Unifed 4s 1940	74½	101¾	104¾	101¼	- 3.5	- 0.5	+35.9
Manhattan Ry. cons. 4s....1990	93	103	103¾	100¾	- 3.3	- 2.5	+ 7.9
Min. & St. L. 1st cons. 5s.1934	99	121¾	116¾	113¾	- 2.7	- 7.0	+14.4
Mo., Kan. & Texas 1st 4s..1990	82¼	100	101½	99¼	- 2.2	- 0.7	+20.7
Missouri Pac. 1st cons. 6s..1920	83	125½	125½	118	- 6.0	- 6.0	+42.2
Mobile & Ohio gen. 4s.....1938	63½	95¼	98	93	- 5.1	- 2.4	+46.5
Nash., Chat. & St. L. 1st cons. 5s 1928	98	112½	114¾	113	- 1.5	+ 0.4	+15.3
N. Y. C. & H. R. ref. 3½s.1997	(a)	109½	99¾	95	- 4.8	-13.2	.....
N. Y., Chic. & St. L. 1st 4s.1937	103½	107	104¾	102	- 2.3	- 4.7	- 1.4
N. Y., Ont. & W. ref. 1st 4s.1992	85	104½	104¾	102	- 2.6	- 2.4	+20.0
Norfolk & Southern 1st 5s.1941	103	112¼	108¾	104	- 4.4	- 7.3	+ 1.0
Norf. & Westn. 1st cons. 4s.1996	\$ 70	103	101½	99¾	- 1.8	- 3.2	+42.5
Northern Pac. pr. ln. ry. & l. g. 4s.....1997	85½	104¾	104½	103½	- 1.0	- 1.2	+20.5
Ore. RR. & Nav. cons. 4s..1946	82	103¾	102¾	101	- 1.7	- 2.3	+23.2
Ore. Sh. Line 1st cons. 5s.1946	(a)	117¼	119¾	116½	- 2.4	- 0.6	.....
Penna. Co. gu. 1st 4½s....1921	109½	113½	109½	106½	- 2.7	- 3.5	- 2.7
Penna. RR. 1st real est. 4s.1923	108	109½	109	104¾	- 3.9	- 4.3	- 3.0
Peoria & Eastn. 1st cons. 4s.1940	73½	98¾	100	97¼	- 2.7	- 1.5	+32.3
Reading Co. gen. 4s.....1997	(a)	97½	102½	100	- 2.4	+ 2.2	.....
Rio Grande Westn. 1st 4s.1939	73½	101¼	99¾	96	- 3.8	- 5.2	+30.6
St. L. & San. Fran. gen. 5s.1931	92	116	114½	110	- 3.9	- 5.2	+19.6
Refunding 4s 1951	(c)	98¾	89¾	83¾	- 5.9	-14.7	.....
St. L., Iron Mtn. & Southern— Gen. cons. & land gr. 5s.1931	72½	116¼	116¼	114¾	- 1.8	- 1.8	+57.4
Unifying & refunding 4s.1929	(c)	92	94¼	91¼	- 3.2	- 0.8	.....
St. Louis Southwn. 1st 4s..1989	66	97	97¾	97	- 0.9	.....	+47.0
St. P. & Sioux City 1st 6s.1919	127	129	123	119¾	- 2.7	- 7.3	- 5.8
St. P., M. & Man. 1st cs. 6s.1933	122	139¼	140	133	- 5.0	- 4.5	+ 9.0
San. Ant. & Aran Pass 1st gen. 4s 1943	54	87¼	89¾	86½	- 3.6	- 0.9	+60.2
Southern Ry. 1st cons. 5s..1994	87¼	119¾	120½	116¾	- 3.2	- 2.6	+33.8
Term. RR. Assn. of St. L. 1st cons. 5s.....1944	102	115	122½	117	- 4.2	+ 1.7	+14.7
Texas & Pacific 1st 5s.....2000	84¾	119¼	125½	120	- 4.4	+ 0.6	+41.6
Toledo & Ohio Cent. 1st 5s.1935	105	115½	115	113½	- 1.3	- 1.4	+ 8.1
Tol., Peo. & Westn. 1st 4s.1917	75	93	93	89¾	- 3.8	- 3.8	+19.3
Tol., St. L. & Wn. 1st 4s..1950	(d)	82	84	79¾	- 5.1	- 2.7	

CONCLUSION

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RAILROAD	1896	1901	1905	1906	% Decrease or Increase Since		
					1905	1901	1896
Ulster & Del. 1st cons. 5s. 1928	99 $\frac{3}{4}$	108	112 $\frac{1}{4}$	112	- 0.2	+ 3.7	+12.8
Un. Pac. 1st rr. & ld. gr. 4s. 1947	(a) 105 $\frac{3}{4}$	105 $\frac{1}{8}$	105 $\frac{1}{8}$	103 $\frac{1}{8}$	- 1.9	- 2.5	.....
Wabash 1st 5s. 1939	103 $\frac{5}{8}$	117 $\frac{1}{2}$	119	113 $\frac{1}{4}$	- 4.8	- 3.6	+ 9.3
West Shore 1st gu. 4s. 2361	104 $\frac{1}{4}$	112 $\frac{3}{4}$	109 $\frac{1}{4}$	105 $\frac{1}{2}$	- 3.4	- 6.4	+ 1.2
Wheel. & L. E. 1st cons. 4s. 1949	(c) 91	92	86 $\frac{1}{2}$	90	- 6.0	- 4.9	.....
Wisconsin Cent. 1st gen. 4s. 1949	(c) 88	88	96 $\frac{1}{4}$	90	- 6.5	+ 2.3	.....
Average 75 bonds (66 roads) ...	.....	106.58	106.63	103.00	-3.40	-3.36	.....
52 bonds (49 roads) ...	93.22	.....	.....	108.22	.....	.....	+16.1
MISCELLANEOUS							
Am. Hide & Leath. 1st 6s. 1919	(c)	92	95	89 $\frac{3}{8}$	- 6.2	- 3.1	.....
B'way & 7th Ave. RR. 1st cons. 5s. 1943	116 $\frac{1}{2}$	121 $\frac{1}{2}$	118 $\frac{1}{2}$	112 $\frac{1}{2}$	- 5.1	- 7.4	- 3.4
Bklyn. City RR. 1st cons. 5s. 1941	110 $\frac{1}{2}$	114	107	105	- 1.9	- 7.9	- 5.0
Bklyn. Rap. Tr. 1st cons. 5s. 1945	74	104 $\frac{1}{2}$	110	105	- 4.5	+ 0.5	+41.9
Bklyn. Un. Gas 1st cons. 5s. 1945	107	116 $\frac{3}{8}$	114 $\frac{7}{8}$	108 $\frac{1}{2}$	- 5.5	- 6.8	+ 1.4
Chic. Gas Lt. & Coke 1st gu. 5s. 1937	92	111	108 $\frac{1}{4}$	106	- 2.1	- 4.5	+15.2
Colo. Fuel & I. gen. s. f. 5s. 1943	* 80	101 $\frac{1}{2}$	103	99	- 3.9	- 2.5	+13.7
Detroit City Gas pr. ln. 5s. 1923	(b) 96 $\frac{3}{4}$	103	101	101	- 1.9	+ 4.4	.....
Inter. Paper 1st cons. 6s. 1918	(b) 109	109 $\frac{1}{2}$	106 $\frac{1}{2}$	106 $\frac{1}{2}$	- 2.7	- 2.3	.....
Met. St. Ry. gen. col. tr. 5s. 1997	(a) 119 $\frac{1}{4}$	114 $\frac{1}{2}$	108 $\frac{1}{2}$	108 $\frac{1}{2}$	- 5.2	- 9.0	.....
Nat. Starch Mfg. 1st 6s. 1920	96	110	88	84	- 4.5	-23.6	-12.2
N. Y. & Queens El. L. & P. 1st cons. 5s. 1930	(d)	102	102 $\frac{1}{2}$	98	- 4.4	- 3.9	.....
Tenn. Coal, Iron & RR.—							
Birming. Div. 1st cons. 6s. 1917	82	111	112	108 $\frac{1}{2}$	- 3.1	- 2.3	+32.3
Third Ave. RR. 1st cons. gu. 4s. 2000	(d)	103	95	91	- 4.2	-11.7	.....
First 5s. 1937	119 $\frac{3}{4}$	123	118	115 $\frac{1}{2}$	- 2.1	- 6.1	- 3.5
U. S. St. col. tr. 2d mtg. 5s. 1963	(f)	(f)	97	98 $\frac{1}{4}$	+ 1.3	.....	.....
Western Union Teleg.—							
Funding & real est. 4 $\frac{1}{2}$ s. 1950	(d)	108 $\frac{1}{2}$	104 $\frac{1}{4}$	102 $\frac{1}{4}$	- 1.9	- 5.8	.....
Average 16 bonds† (15 co's.) ....	.....	108.93	106.46	102.52	- 3.7	- 5.9	.....
9 bonds (9 co's.)	97.35	.....	.....	104.89	.....	.....	+ 7.5
Total average RR. & Misc.							
91 bonds† (81 co's.) ....	.....	107.75	106.54	102.76	- 3.5	- 4.6	.....
61 bonds (58 co's.)	95.37	.....	.....	106.55	.....	.....	+11.7

U. S. GOVERNMENT	1896	1901	1905	1906	% Decrease or Increase Since		
					1905	1901	1896
U. S. 2s consols. coup.....1930	(d)	109¼	103¼	104½	+ 1.2	- 4.3	.....
U. S. 3s 10-20s coup.....1918	(b)	108½	104½	103½	- 1.0	- 4.6	.....
U. S. 4s coupon 1925	118½	139½	134½	131½	- 2.2	- 5.7	+11.0
Average 3 bonds .....	.....	119.08	114.08	113.16	- 0.8	- 5.0	.....
FOREIGN GOVERNMENT							
British Consols (2½%).....	¶108¾	¶ 91½	88½	86½	- 2.5	- 6.4	-19.9
French Rentes (3%) fr.....	102.62½	100.80	100	95.62½	- 4.4	- 5.1	- 6.8
Average of 2 bonds.....	105.69	96.37	94.16	90.84	- 3.5	- 5.7	-14.1

* No sales—asked price as of July, 1896. § No sales—bid price as of November, 1896. ‡ Omitting U. S. Steel Bonds. ¶ Rate was 2¾ % per annum to April 5, 1903. Bonds not issued until a 1897; b 1898; c 1899; d 1900; e 1901; f 1903.

STOCK PRICES

RAILROAD	1896	1901	1905	1906	% Decrease or Increase Since		
					1905	1901	1896
Atchison, Topeka & Santa Fe.....	e 123 $\frac{3}{8}$	77 $\frac{7}{8}$	88 $\frac{3}{8}$	101 $\frac{1}{4}$	+14.6	+	30.0
Preferred.....	233 $\frac{3}{4}$	96 $\frac{1}{2}$	104	100 $\frac{7}{8}$	-3.0	+	4.5
Baltimore & Ohio, com.....	f 33 $\frac{3}{8}$	106	112 $\frac{1}{2}$	119	+5.8	+	12.3
Canadian Pacific, com.....	57 $\frac{1}{2}$	110 $\frac{1}{8}$	171 $\frac{1}{8}$	175 $\frac{1}{4}$	+2.0	+	59.1
Chesapeake & Ohio.....	16 $\frac{1}{8}$	46 $\frac{1}{2}$	55 $\frac{3}{4}$	56	+0.4	+	20.4
Chicago, Milwaukee & St. Paul	74	169 $\frac{3}{8}$	180 $\frac{1}{2}$	172	-4.7	+	1.5
Preferred.....	125	189 $\frac{1}{8}$	187 $\frac{1}{2}$	191	+1.9	+	1.0
Chicago & North Western.....	102 $\frac{1}{2}$	209	222	202	-9.0	-	3.3
Preferred.....	146	239	240	235	-2.1	-	1.7
Cleve., Cin., Chic. & St. L., com	28 $\frac{1}{4}$	99 $\frac{1}{2}$	99 $\frac{1}{4}$	94	-5.3	-	5.5
Delaware & Hudson.....	124	172 $\frac{3}{8}$	237	216 $\frac{1}{2}$	-8.6	+	25.6
Delaware, Lack. & Western...	157	239 $\frac{1}{2}$	485	550	+13.4	+	129.6
Erie.....	15 $\frac{1}{8}$	41 $\frac{3}{8}$	48	44	-8.3	+	6.3
First Preferred.....	33 $\frac{1}{2}$	70	81	76	-6.2	+	8.6
Second Preferred.....	20	56 $\frac{1}{2}$	72 $\frac{1}{4}$	67 $\frac{1}{2}$	-6.6	+	19.5
Great Northern.....	115	194	315	317	+0.6	+	63.4
Illinois Central.....	92	139	178 $\frac{1}{4}$	172	-3.5	+	23.7
Louisville & Nashville.....	47 $\frac{1}{4}$	103 $\frac{1}{2}$	152 $\frac{1}{4}$	143 $\frac{1}{2}$	-5.7	+	38.6
Manhattan Ry.....	93	122 $\frac{5}{8}$	165 $\frac{1}{2}$	143 $\frac{1}{4}$	-13.4	+	16.8
Missouri, Kansas & Texas.....	12	25 $\frac{1}{2}$	33 $\frac{3}{8}$	34 $\frac{1}{4}$	+2.6	+	34.3
Preferred.....	26	50 $\frac{1}{4}$	69 $\frac{1}{2}$	68 $\frac{1}{2}$	-1.4	+	36.3
Missouri Pacific.....	21 $\frac{1}{2}$	97 $\frac{7}{8}$	104	94 $\frac{3}{8}$	-9.3	-	3.6
N. Y. Central & Hudson River	95	158 $\frac{1}{2}$	152	128	-15.8	-	19.2
N. Y., New Haven & Hartford	172 $\frac{3}{8}$	214	203 $\frac{1}{2}$	194	-4.7	-	9.3
N. Y., Ontario & Western.....	14 $\frac{3}{4}$	34 $\frac{1}{2}$	54 $\frac{3}{8}$	45 $\frac{3}{8}$	-16.2	+	31.5
Norfolk & Western.....	g 15 $\frac{1}{2}$	56 $\frac{7}{8}$	86 $\frac{5}{8}$	94 $\frac{1}{8}$	+8.7	+	65.5
Adjustment Preferred.....	g 27	90	93	90	-3.2	.....	.....
Northern Pacific.....	12 $\frac{1}{4}$	b150	205	212 $\frac{1}{2}$	+3.7	+	41.7
Pennsylvania.....	k104 $\frac{1}{2}$	146 $\frac{3}{4}$	145 $\frac{3}{4}$	145	-0.5	-	1.0
Reading Co.....	l 18 $\frac{1}{4}$	42 $\frac{3}{4}$	128 $\frac{1}{2}$	142 $\frac{3}{4}$	+11.1	+	233.9
First Preferred.....	l 42 $\frac{1}{4}$	77 $\frac{1}{4}$	94	90	-4.3	+	16.7
Second Preferred.....	l 26	53 $\frac{3}{4}$	99 $\frac{1}{4}$	95 $\frac{1}{4}$	-3.5	+	78.1
Southern Pacific Co., com.....	14	59 $\frac{1}{4}$	70 $\frac{3}{8}$	91 $\frac{1}{2}$	+30.0	+	54.4
Southern Ry, vot. trust cfts.....	9	31 $\frac{3}{4}$	36 $\frac{3}{8}$	34 $\frac{1}{4}$	-5.8	+	7.9
Preferred vot. trust cfts.....	27 $\frac{1}{4}$	86 $\frac{7}{8}$	99 $\frac{3}{4}$	94 $\frac{7}{8}$	-4.9	+	9.2
Texas & Pacific.....	8 $\frac{1}{2}$	39 $\frac{1}{8}$	34 $\frac{1}{2}$	36 $\frac{1}{4}$	+5.1	-	7.3
Union Pacific.....	n 14 $\frac{3}{8}$	100 $\frac{3}{4}$	133 $\frac{3}{8}$	182 $\frac{1}{2}$	+37.1	+	81.1
Preferred.....	(p) 88 $\frac{7}{8}$	95 $\frac{1}{2}$	92 $\frac{1}{2}$	92 $\frac{1}{2}$	-3.1	+	4.1
Wabash.....	7	20	21 $\frac{1}{2}$	19 $\frac{1}{4}$	-10.9	-	3.7
Preferred.....	16 $\frac{1}{8}$	36 $\frac{1}{4}$	41 $\frac{1}{8}$	43 $\frac{1}{8}$	+4.9	+	19.0
Average 40 stocks (28 co's)	*51.55	103.56	129.92	130.12	+0.1	+	25.6

MISCELLANEOUS	1896	1901	1905	1906	% Decrease or Increase Since		
					1905	1901	1896
Amalgamated Copper.....	(b)	86	83 $\frac{3}{8}$	111	+32.7	+29.1	.....
Amer. Car & Foundry.....	(b)	25	41 $\frac{3}{8}$	43 $\frac{5}{8}$	+5.4	+74.5	.....
Preferred.....	(b)	80 $\frac{1}{2}$	100 $\frac{5}{8}$	101 $\frac{1}{2}$	+0.9	+26.1	.....
American Locomotive.....	(c)	24 $\frac{1}{2}$	70	74	+5.7	+202.0	.....
Preferred.....	(c)	84	116	111	-4.3	+32.1	.....
Amer. Smelting & Refining.	(b)	40 $\frac{3}{4}$	138 $\frac{3}{4}$	154 $\frac{1}{2}$	+11.3	+279.1	.....
Preferred.....	(b)	95 $\frac{3}{4}$	125	116 $\frac{3}{4}$	-6.6	+21.9	.....
American Sugar Refining...	116	118	142 $\frac{5}{8}$	133 $\frac{3}{8}$	-6.5	+13.0	+15.0
Preferred.....	100 $\frac{5}{8}$	116 $\frac{1}{4}$	140	132	-5.7	+13.5	+31.2
Brooklyn Rapid Transit.....	21	61 $\frac{7}{8}$	75 $\frac{5}{8}$	78 $\frac{5}{8}$	+4.0	-27.1	+274.4
Colorado Fuel & Iron, com.	19 $\frac{1}{2}$	92 $\frac{1}{2}$	45 $\frac{1}{4}$	52	+14.9	-43.8	+166.6
Consolidated Gas (N. Y.)....	149 $\frac{1}{2}$	214	182 $\frac{3}{4}$	138 $\frac{3}{4}$	-24.1	-35.2	-7.2
General Electric.....	29 $\frac{1}{4}$	258	186	174	-6.5	-32.6	+494.9
Metropolitan Street Railway	100 $\frac{3}{4}$	154 $\frac{7}{8}$	119 $\frac{1}{2}$	107	-10.5	-30.9	+6.2
National Lead.....	24 $\frac{1}{2}$	203 $\frac{3}{4}$	52 $\frac{1}{2}$	74 $\frac{1}{2}$	+41.9	+259.0	+204.1
Preferred.....	88	88 $\frac{1}{2}$	107	103 $\frac{1}{8}$	-3.6	+16.5	+17.2
People's Gas, Light & Coke..	(a)	103 $\frac{5}{8}$	104 $\frac{7}{8}$	88 $\frac{3}{4}$	-15.4	-14.4	.....
Pullman Co.....	155	218 $\frac{1}{2}$	249 $\frac{1}{2}$	259 $\frac{1}{2}$	+4.0	+18.8	+67.4
Tenn. Coal, Iron & R.R., com	25	59 $\frac{7}{8}$	91	159	+74.7	+165.6	+536.0
U. S. Rubber.....	20	14 $\frac{3}{4}$	52 $\frac{3}{4}$	49 $\frac{7}{8}$	-5.5	+238.1	+149.4
First Preferred.....	(c)	48	110	107	-2.7	+122.9	+51.8
U. S. Steel.....	(c)	41 $\frac{1}{4}$	38	47 $\frac{5}{8}$	+25.3	+15.5	.....
Preferred.....	(c)	90 $\frac{1}{2}$	105 $\frac{1}{4}$	106 $\frac{7}{8}$	+1.5	+18.1	.....
Western Union Telegraph...	85	91	93 $\frac{1}{4}$	86 $\frac{1}{8}$	-7.6	-5.4	+1.3
Average 24 stocks (17 co's)	.....	92.86	107.14	108.77	+1.3	+17.1	.....
14 stocks (11 co's)	71.76	.....	.....	118.21	.....	.....	+64.7
Total average RR. & Misc.	.....	.....	.....	.....	.....	.....	.....
64 stocks (45 co's)	.....	98.21	118.53	119.44	+0.8	+21.6	.....
54 stocks (39 co's)	61.65	.....	.....	124.16	.....	.....	+101.4

Company was not formed until a 1897; b 1899; c 1901. * Includes Union Pacific preferred, initial sales of which were made at an average price of 62 $\frac{1}{2}$ in Feb. 1898.

e Price as of February, 1897. First sale after reorganization in 1896.

f New stock not on market. Price given is the equivalent of 16 $\frac{1}{4}$ in old stock.

g Price as of March, 1897. First sale after reorganization in 1896.

h Stock was cornered on May 9, 1901, and sales for "cash" were made on that day as high as 1000.

k Price at Philadelphia Stock Exchange.

l Price as of April, 1897.

n Stock of present company not on market. Price given is the equivalent of 9 $\frac{1}{4}$ in stock of old company.

p Initial sales were made at 61 $\frac{3}{8}$ @ 63 $\frac{3}{8}$ in February, 1898.

During the three months since the above tables were prepared the prices of bonds have declined an average of about one-half point and stocks an average of about 10 points—to February 2, 1907.

These tables show that while the prices of the stocks of railroads rose an average of 152%, in 10 years, the prices of railroad bonds rose only 16%; that while the prices of stocks rose 26%, in five years, the prices of bonds declined 3%; and that while the prices of stocks averaged the same, in November, 1906, as in November, 1905, the prices of bonds declined 3%.

Based upon the tables, similar statements can be made as to the prices of bonds and stocks of the industrial and other concerns included under the head "Miscellaneous."

Of course these averages, of practically all of the stocks and bonds actively traded in on the New York Stock Exchange, furnish no fair test of the real decline in bonds the security of which has been unquestioned at all times during the last ten years. Many of the railroads were reorganized in 1896, or just previously. Some of these were the Atchison, whose stock has risen 700%, since 1896, the Reading, whose stock has risen 680%, since 1896, and 234%, since 1901, the Northern Pacific, whose stock has risen 1630%, since 1896, and the Union Pacific, whose stock has risen 1120%, since 1896, and 81%, since 1901. The bonds of these roads were largely in the speculative stage, in 1896, and partly so, in 1901. The prices of the bonds of such well established roads as the Pennsylvania, Illinois Central and Lake Shore were all lower in 1906 than in 1896.

Beyond question, the prices of bonds whose security has been ample at all times have been declining for 10 years. This is a most remarkable fact considering the great rise in the prices of stocks during this time.

6. Rising prices increase cost of materials and of operation and tend to decrease the profits of concerns selling at fixed prices.

About two years ago Mr. Edwin Lefevre gave us a very interesting story about Wall Street entitled "The Golden Flood." It gave an account of a youth who, in a few weeks, deposited \$50,000,000 of gold at the assay office. Investigation, made quietly by some of New York's richest men who were becoming frightened at the flood of gold, developed that the young man was a metallurgist who had, supposedly, discovered the secret of transmuting base metals into gold. Discussing matters with these rich men it was decided that no great harm would be done if no more than \$250,000,000 were added, in this way, to the gold supply and if the secret of production were not known. It was stated that the richest man in the world, knowing these facts, quickly concluded what would be the effects of an enormous increase in the gold supply and as quickly began to sell millions of gold bonds and to buy stocks.

In a general way this "richest man" acted wisely. Certainly he did so in selling his gold bonds. If, however, he proceeded to buy stocks indiscriminately he may have made great mistakes. Thus, during the past year, as shown by the above tables, the prices of stocks declined even faster than did the prices of bonds, although the flood of gold was greater than ever be-

fore and prices of commodities rose rapidly. It is, then, entirely unsafe to jump to the conclusion that more gold means higher prices for all stocks.

The one great class of companies the prices of whose products are usually fixed by law is that of public service corporations—street railway, gas, water, electric light, telephone, etc., companies. Unless invention and cheaper cost of service can keep pace with gold depreciation the net earnings of these corporations will diminish to the vanishing point, whether the price of gas be fixed at 80 cents, instead of \$1, and car fares at 3, instead of 5 cents. The labor is the more important item of cost with street railway companies and the material and supplies item the more important with the lighting companies. It will be very difficult to get laws and ordinances passed permitting these corporations to charge higher prices for their services and products. At the present moment nearly every legislature is considering bills to compel lower prices or better service from these companies. The future of the stocks, especially of the highly watered stocks of public service corporations, is not bright.

Our railroads are but little better situated than our public service corporations. While they are, except for restrictions on passenger rates in some states, for the most part nominally free to advance rates with increasing cost of operation, they are, by public opinion, virtually prevented from advancing rates directly and openly. The late Samuel Spencer, president of the Southern Railway, well stated the situation, in a speech at Montgomery, Alabama, on October 25, 1906. In it he said:

"With the increased prosperity of the country have come—and properly—higher wages and also higher prices for everything the carrier must buy. Instead of \$9 per thousand feet for bridge and shop lumber in 1896, the cost is now \$16 to \$20, or more; instead of \$18 per ton for steel rails, the cost is now \$28 to \$29; instead of \$11,000 each for locomotives, the cost is now from \$16,000 to \$20,000; instead of \$475 for box cars, the cost is now \$800, and so on throughout the long list of necessary railroad purchases.

The grave economic conditions confronting our railroads are shown by these statements. That they are very grave is further shown by a comparison of gross and net earnings. A few years ago net were increasing more rapidly than gross earnings. During the last four months of 1906, the rate of increase was greater in the gross than in the net earnings. Thus, in December, 1906, gross earnings increased 8.68% and net earnings only 2.11%, on the 93 roads reporting. This change occurred under most favorable conditions as to weather and amount of freight offered. It simply means that the railroads have reached a point where all of the savings possible from improved road beds, rolling stock and methods of operation are overcome, and more than overcome, by the increased cost of materials, supplies, labor and rolling stock.

At the present time (February 8, 1907), the executives of 29 railroads are conferring in New York on two important propositions: (1) To induce the Interstate Commerce Commission to amend its circular of February 1, regulating the form and manner of publishing and issuing tariffs and joint rates which are to become

effective March 1. (2) To increase commodity rates 10% by increasing the minimum load for a car. Of course such increase can be made only with the consent of the Interstate Commerce Commission. Considering the present temper of the people it is improbable that either the railroad executives or the Interstate Commerce Commission will dare raise rates much. We are, perhaps, just at the beginning of a long struggle on this point. In any case it is not likely that rates per ton-mile will ever again be as low as they have been during the past few years.

7. Rising prices tend to increase the net earnings of all concerns that own their own sources of materials and supplies.

This applies to railroads and public service corporations, as well as to manufacturing and mining companies. As, however, the tangible assets of public service corporations are ordinarily comparatively small, the benefits from their increase in values are usually more than offset by the losses from the increase in the cost of operation. If, as in the case of the Great Northern railroad, extremely valuable ore lands are owned, their increasing value may, for some years, exceed the increasing expenses of operation. Increasing taxes must, however, be considered.

Most manufacturing concerns are free to change prices with changing cost of materials and labor. But, as the prices of materials usually rise quicker than do the prices of finished products, manufacturing concerns in which the cost of materials constitutes the chief cost of production, are likely to be at a disadvantage during periods of rising prices. If they own their own sources

of materials and supplies, as do some of the larger steel, paper, leather, match, rubber, etc., companies, they will not suffer from this fact. It should not, however, be forgotten that the prices of the products of these, as of many other manufacturing concerns in this country, are highly artificial, because of tariff duties. Perhaps half of the net profits of our steel, sugar, lead, paper, leather and of many other trusts are dependent upon the retention of tariff duties. The uncertainties of tariff legislation will, therefore, be largely reflected in the securities of these corporations. As a rule, the assets of this class of corporations will tend to increase even more rapidly than will the cost of living. Manufacturing concerns, dependent for materials and supplies mainly upon other concerns do not occupy an enviable position, especially, as is often the case, if they have to compete, in finished products, with concerns that own mines and produce their own raw materials.

8. Rising prices of commodities tend to cause the prices of tangible property to rise.

Of course, if lumber, bricks, glass, plumbing supplies, paints and all other materials that go into buildings cost more, houses, factories, stores, fences, bridges, tunnels and other structures and improvements will cost more and must finally sell at higher prices. Land, mines and forests will rise in price simply to keep their relative exchange values with gold, if for no other reason. Thus, if an acre of land sells at \$100, when gold has a certain exchangeable value with other things produced, this acre, to keep its parity with all other things bought and sold, must sell at \$200, when gold has lost half of its exchange value. There are certain other fac-

tors that interfere to prevent the maintenance of this parity at all times. Thus, because the prices of commodities and labor do not rise simultaneously, when gold is depreciating, the distribution of products is different, when prices are rising, from what it is when prices are stable or falling. Interest rates are also less perfectly adjusted at such times and result in giving less of the product to creditors and more to debtors. For these reasons the distribution of products is, as is shown elsewhere, materially different from what it is under normal conditions and stable prices. Wage-earners, for example, although they may get more money, absorb less product. Their incomes being insufficient to purchase as much as formerly, economy must be practiced. They will, perhaps, wear less woolen and more cotton clothes; eat less meat and more bread; and occupy less house space. For these reasons cotton and wheat lands may rise faster than will most other lands while city lots will rise slower than under normal conditions. In many other ways the balance of values is disturbed by rising prices. Other factors, however, interfere with these factors. When lumber gets too high buildings will be constructed largely of cheaper materials—cements possibly. Or the removal of the tariff on lumber, lead, glass, nails, tin plate, etc., may temporarily and relatively cheapen building materials with consequent effects upon the prices of timber lands and lead mines. As a rule, though, timber and mining lands will rise early and rapidly, as a result of the great building enterprises that come from business expansion. This they have been doing in this country for ten years.

The metals—copper, tin, lead, etc.—have risen much more than have average prices. Iron, steel, coal and oil also rose early and rapidly.

9. Rising prices of commodities and property tend to increase the values of the securities of corporations holding commodities or property.

The truth of this statement is so self-evident, in view of what has gone before, that it need not be further explained. Investors should always weigh carefully the relative importance of the factors affecting values, never forgetting the effect of possible changes in the tariff, in local taxes, and of legislation regulating rates—changes that will partly be the indirect result of rising prices.

10. Rising prices and cost of living necessitate higher money wages.

Wholesale prices have risen fully 50% in this country, and probably 30% in England and other countries, in ten years. Retail prices and actual cost of living, have, perhaps, risen 40%, in this country, and 20 or 25%, in other countries. Meanwhile average wages have certainly not risen more than 20%, and possibly only 15%, in this country, not more than 5 or 10%, in England and Europe and perhaps 20%, in Japan and in South Africa and other sparsely settled countries. Partly because of good crops, and partly also, perhaps, because of tariff trusts, both prices and wages have risen quicker and faster in this than in most other countries. Wages, that is money wages, have risen faster for two reasons: (1) Because prices have risen faster, thus necessitating a greater rise in wages; (2) Because industry is here conducted on a larger scale

than in most other countries. When industry is conducted largely by great corporations, owned by hundreds and thousands of stockholders, of which a half dozen are office holders, there is less personal interest and opposition to advancing wages than when industry is conducted on a small scale and when any advances made will come largely out of the pockets of those who make or concede them. That there are many exceptions to this rule, or supposed rule, is certain. Many men, as individuals and private employers, will concede more to their employes than the law of supply and demand would warrant. It is safe to say, however, that, as a rule, men will look more sharply after their own interests than they will after the interests of stockholders. Besides, as a rule, big corporations produce more cheaply than small companies and individuals and can, therefore, afford to pay higher wages.

11 and 12. As rising prices do not mean increased profits to all concerns, many employers will not concede higher wages and many strikes will result.

As explained previously, rising prices increase the cost of operation of railroad and public service corporations, and the cost of production of manufacturing concerns. When, as in the cases of most public service companies, and of some manufacturing concerns, rates and prices are fixed by law or custom, increasing cost of operation means declining net profits. Because the cost of living is rising, and because many industries can afford to pay higher wages, the general wage scale will be rising. Wages in all lines, must, therefore, advance, even if many operating companies fail and have

to be reorganized. Labor troubles are almost certain to be numerous for many years to come, especially in connection with corporations and individuals in the unfortunate industries that cannot recoup the losses caused by rising prices for materials.

13. Because wages will rise slower than prices there will be dissatisfaction and unrest among wage and salary earners.

As stated before, the cost of living has probably risen 40% in this country, while wages have risen not to exceed 20% in ten years. Probably the best test of the general rise in money wages is furnished by the statistics of railroads, made yearly to the Interstate Commerce Commission. From 1896 or 1897 to 1904 these showed an average increase of less than 10%. The rise since 1904 will, perhaps, average nearly 10%. As about half of the employes consist of skilled and half of unskilled and half of organized and half of unorganized labor, the average rise of wages of railroad employes is likely to be a fair average for the whole country.

Wages, then, have risen only 20% while the cost of living has risen 40%. This means that whereas \$1.40 is now required to buy what \$1 bought in 1896, the average workingman has only \$1.20 with which to purchase what sells for \$1.40. It means that there is a tremendous "rake-off" left for somebody. As there are about 30,000,000 workers in this country, receiving an average of about \$600 each per year, the total wage bill amounts to about \$18,000,000,000. If this is 120% of what the same earners would have received in 1896, they would then have received \$15,000,000,000. But to

buy what they could then have bought with \$15,000,000,000 wage earners today would have to have \$21,000,000,000. Hence the difference between what our wage earners actually get and what they should get, on the 1896 basis, is \$3,000,000,000 a year. This amount represents, approximately, the "rake-off" that must go to somebody. It is the price our workers and consumers are paying for the kind of prosperity that we see on all sides. As to who gets it we will not undertake to say. The main fact is that this vast amount, through a price-and-wage juggle for which nobody in particular is to blame, is yearly extracted from the pockets of our workers and spenders. It is this \$3,000,000,000 a year that is making riches for certain people or certain classes. It is the unfairness and injustice measured by this \$3,000,000,000 that is largely responsible for the prevailing discontent that is breaking out in so many places and ways. More than anything else this fundamental injustice in the distribution of products is creating unrest and dissatisfaction.

14. Rising prices encourage speculation and discourage honest industry.

This statement is almost axiomatic. When prices are rising, merchants are carrying unusually large stocks of goods, builders are constructing more houses than usual, farmers are buying more land than they need, business is artificially stimulated and speculation is rife in all classes of commodities and property that are fit subjects of speculation. When speculators in real estate and commodities are waxing fat and reaping great profits, economy and thrift are at a discount and extravagance and idleness are at a premium. Every

man is hoping if not trying to live by his wits rather than by his honest effort.

15. Thus rising prices, by diminishing the incomes of "safe" investments in "gilt-edged" bonds and stocks and by increasing the profits of speculators, encourage extravagance, recklessness, thriftlessness, indifference, dishonesty and graft.

16, 17, 18, 19, 20, 21 and 22 will not be repeated here but will be discussed together. They follow naturally from what has preceded. That rising prices and high interest rates work to the advantage of the debtors—the rich—and to the disadvantage of the creditors—the middle classes—and that they, therefore, result in rapidly concentrating wealth in the hands of a comparatively few is reasonably certain. They lead naturally, then, to periods of unrest, discontent, agitation, strikes, riots, rebellions and wars. Important results in the financial, industrial and commercial world, as well as great changes in the political, social and religious world can be traced to rising prices and a depreciating standard of value. These effects have been traced and commented upon by many writers and historians. Such discussion was, perhaps, more general a few years after the discovery of gold in California and Australia than at the present time. We may be certain, though, that a repetition, during the next ten years, of what has happened to prices, during the last ten years, will lead to results that will arouse the most widespread interest and discussion. Before referring to some of these discussions a brief explanation of who constitute our chief creditors and debtors will be attempted.

Mr. Bryan and many of his silver and greenback friends nearly overturned this country, a few years ago, in their efforts to save us from an appreciating dollar and falling prices. They called it the robber dollar; the dollar that robs the poor and gives to the rich. They assumed that the poor were the debtors and the rich the creditors. In this they were clearly mistaken. It is probable that less than one-tenth of the debts of this country are owed by persons worth less than \$1,200, although fully 75% of the people possess less than this average per capita of wealth. The great mass of the people cannot enjoy the rich man's privilege of being a debtor. Of course a poor man may run up a bill at the store for a week, or possibly for a month, if his wages are paid monthly. This fact, however, seldom puts him in the debtor class. The accruing wages due him make him a creditor. Unless his store bill at the end of the week exceeds his wages he has been a creditor all the time. Likewise, all who have money in savings or other banks or who hold insurance policies are creditors. There are probably three times as many people in the net creditor as in the net debtor class.

This being true, the appreciating dollar does not rob the poor and give to the rich; it robs the rich—the great debtor class—and gives to the poor—the great creditor class. It was largely because of this fact, made reasonably clear to wage earners, policyholders and depositors in 1896, that Mr. Bryan did not get either the sympathy or the votes of the majority of the people. If, as he supposed, the majority of the people had been debtors, rather than creditors, the result of

the 1896 election might have been very different from the actual result.

Since 1896, the dollar has been shrinking and prices have been rising. As a result we have had "prosperity," such prosperity as the world never saw before, unless possibly during the gold inflation period from 1850 to 1860, when all wealth doubled in value. There is no disputing the fact that we have had wonderful prosperity since 1896. "We" means the nation as a whole. There has been a marvelous increase in our total wealth in the last ten years.

But who is getting the bulk of this increase—Mr. Bryan's poor debtors? Not at all. The rich debtors are pocketing the great bulk of this great depreciation loss. The rich own the stocks of our banks, our insurance companies, our bonded railroads, our bonded public service corporations and our mortgaged real estate in city and country. These are our great debtor classes. At this moment they probably owe \$30,000,000,000, at least two-thirds of which is owed to bank depositors, policyholders and bondholders, the majority of whom are worth less than \$5,000 each.

This depreciating dollar suits these rich debtors "to a T." It possesses a subtle alchemy that enables them to extract wealth from the poor, honest workers, not only without the traditional small "squawk" that accompanies the extraction of wealth, even by indirect taxation, but it accompanies the extraction with a feeling of exhilaration that makes the victim enjoy the process and have hallucinations of prosperity. This depreciating dollar is easily the slickest device ever invented for enabling the rich to absorb the earnings and

wealth of the comparatively poor. Observe how it works!

The hard-working, saving people put their money into banks and policies. The stockholders of these corporations take these honest, full-value dollars and invest them in bonds, stocks and notes. They pay the depositors and policyholders 3 or $3\frac{1}{2}\%$ interest. At the end of, say, ten years the depositor or policyholder calls for his money. He receives it back in shrunken dollars that have lost one-third of their value. The stockholders have abstracted the other third just as much and as surely as did the olden kings who clipped off a third of the gold or silver from the coins of their realms and who then compelled their subjects to receive the clipped coins as full coins in payment of debts.

Mr. Bryan may not have known of the alchemy in a depreciating dollar any more than the fisherman in the Arabian Nights knew of the genii in the bottle. He may not have known that his dollar would not only still further impoverish the poor, but that it would produce the greatest crop of millionaires and embryonic billionaires the world ever saw. The depreciating dollar, however, is faithfully fulfilling the Scriptural declaration—"For unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath."

GOLD DEPRECIATION LITERATURE IN THE FIFTIES

A big crop of gold depreciation literature was harvested during the gold inflation period following the discovery of gold in California and Australia. The

subject was so well threshed out then by able men that it is worth while to mention some of the writers and to quote some of their conclusions.

Mr. Frederick Scheer, of London, wrote a pamphlet in 1852, "On the Effects of the Californian and Australian Gold Discoveries."

P. J. Stirling, F. R. S. E., of Edinburgh, in 1853, wrote a book on "The Australian and Californian Discoveries, and Their Probable Consequences."

Mr. Stirling agrees with Hume that, as a result of the new gold, "production, in all the departments of industry, agricultural and manufacturing, will be powerfully excited and stimulated" and that "the country will rapidly advance in material prosperity." But Mr. Stirling does not think that all of the consequences of "the great monetary changes upon which we seem now about to enter" will be beneficial. "During the progressive development of these changes," he says, "there will be a fearful breaking up of all the existing relations of property. Before the revolution is accomplished, much suffering must be endured by large classes of the community." He quotes "Harris on Money and Coins" as to the effect of a sudden flux of money. Mr. Harris argues that because of the reduced values of taxes and rents both the government and the nobility will grow poorer and weaker. "The government," he says, "being thus weakened and distressed, disorders will inevitably arise."

One of the best books brought out by gold discoveries in California and Australia was by Michael Chevalier, member of the Institute of France, "On the Probable Fall in the Value of Gold; The Commercial

and Social Consequences Which May Ensnue, and the Measures Which it Invites." It was written in 1856 and appeared simultaneously in France and England, it having been translated into English by Richard Cobden, who wrote an exceedingly interesting "Translator's Preface." Here is an extract from Mr. Cobden's preface:

"I wish I could believe, that either in the original (where a brilliant style is added to its other merits) or in the translation, this work will be read as widely as, from its great importance, it deserves to be. The very topic forbids such a hope. It is, nevertheless, a subject on which the early possession of knowledge, and the exercise of forethought, will confer great advantages over ignorance and indifference, and afford the only safeguard against probable loss."

Space will permit only a few brief extracts from Mr. Chevalier's able work:

"I do not believe I exaggerate in saying that the transition period, which it would be necessary to pass over before the fall had achieved its full effect, and gold had regained a somewhat stable value, would offer features of instability and discontent characteristic of revolutionary epochs. . . .

"It is for society a perilous trial, especially when the working population find themselves among the number of the suffering classes; it is, in fact, they to whom patience is most difficult, since they possess the fewest resources. . . . When events are in conformity with right, it is human nature generally to resign itself to them. On the contrary, indignation and

resentment easily take possession of a man when he feels that justice is violated in his person. . . .

"Wages and salaries of all kinds would eventually rise in proportion to the enhanced price of commodities, but the transition would, I fear, be accompanied with much inconvenience and suffering. . . .

"With respect to those who have property to invest, they would, as a rule, avoid those investments which yield incomes of a fixed amount of money, such as dividends from the funds, interest from bonds and mortgages, as well as annuities, rent charges, ground rents, guaranteed stock, etc., whilst property of an expansive nature, which rises in proportion to the depreciation of the currency, such as land, houses, shares, etc., would be preferred."

In it he discusses the quantity theory of money and the effects of depreciation upon prices, wages, interest, fundholders, industry, etc. His conclusions are usually sane and sensible. He expressed surprise that, with gold so abundant, money should be so scarce and that "empty treasuries and impoverished and discontented people" should be the universal complaint.

The first 25 chapters discussed all of the ordinary financial and industrial effects of the increasing supply of gold. The last chapter considers the "Probable effects on the condition of different classes of society, laborers, capitalists, landlords, tenants, public officers, annuitants, stipendiaries, debtors, creditors, etc." He quotes from "Hume's Political Discourses" as follows:

"In every kingdom into which money begins to flow in greater abundance than formerly, everything

takes a new face, labor and industry gain life, the merchant becomes more enterprising, the manufacturer more diligent and skilful, and even the farmer follows his plow with greater alacrity and attention."

At least a half dozen other pamphlets and books on the subject of gold depreciation were brought out in that period. One by Prof. W. Stanley Jevons on "A Serious Fall in the Value of Gold Ascertained, and Its Social Effects Set Forth," in 1863. Numerous articles on this subject appeared in Hunt's Merchant's Magazine from 1851 to 1856. Extracts from some of them appeared in Moody's Magazine for December, 1905. Lack of space prevents these and others from being reprinted as an appendix to this book.

Apparently the suddenness and extent of the increase in the supply of gold attracted greater attention then than has a much more important but more gradual increase at the present time. That the financial, industrial and political world of today will soon be alive to the great importance of the change now taking place in the value of gold is reasonably certain. That questions connected with this change may soon become paramount in politics is in the realm of possibilities.

The present era of rapidly increasing output of gold and of rapidly advancing prices and interest rates has brought out but little literature on this subject and practically none dealing with the political and social effects of depreciating money.

Several professors, however, are known to be delving into past periods of inflation and to be writing upon this most interesting problem. One of them, Prof. J. Pease Norton, of Yale, had an article, in the

Yale Review of November 15, 1906, on "The Depreciation of Gold," which contained many novel and startling statements. He not only thinks that gold depreciation raises the rate of interest and depresses the prices of bonds and that it will "furnish several vital financial problems during the next five years," but says that "the political situation is intimately connected with the subject of gold depreciation" and suggests a close connection between rising prices and the discontent, dissatisfaction and radicalism that characterize the present industrial and political conditions.

Prof. Norton puts the proposition that "If the industries of the countries of the world are to be subject to so great a source of disturbance, the problem may soon require governmental control." In order to regulate the production of gold and to maintain a stable standard of value, he suggests three courses:

"(1) Government ownership of the gold industry.

"(2) Government tax levied as a specific duty on every ounce of gold produced, and adjusted in amount so as to produce stability by limiting output.

"(3) Abandonment of a metallic standard and the adoption of a tabular standard, supplemented by an extensive and adequate clearing system, adjusted to the needs of communities in their exchanges, local, intra- and international, as to place, and to variations in discount rates by a system of deferred clearings, as to time. It is probable that, as nations and legislatures are constituted, the latter remedy would be the simplest and most practicable."

Prof. Norton thinks that "Congress could well af-

ford to appoint a commission to take testimony and gather evidence on this important subject."

An even better method of controlling prices, perhaps, is that suggested by Mr. A. B. Johnson, in *Hunt's Merchant's Magazine* of March, 1851. It is very simple and, apparently, very easy to put into operation, either by one country or by many countries, acting together. The problem, however, is not simple. Here is the plan:

"Government might measurably shield creditors from such a danger, by statedly increasing the quantity of gold which composes an eagle; so as to compensate in quantity from time to time as depreciation of value should become certain and permanent; as the British Government, some years since, called in the guineas which had lost weight by abrasion. Such a process would prevent the currency from sustaining any great loss of value at any one time; and would also confine the loss of the holders of the coin for the time being, without entailing it, and accumulating it, on remote debts. But governments are usually debtors themselves, and will not be likely to enhance their own burdens."

Some of the many financial, economic and social problems connected with the depreciation of gold have been considered on the preceding pages. It has been fairly well demonstrated that the rapidly increasing output of gold leads to rising prices, rising, or high interest rates and that, therefore, investment values are shifted about in many curious ways. It has been

suggested, with, some reason and evidence, that the depreciation of gold is indirectly responsible for some of the political, social and religious discontent now prevalent throughout the civilized and half-civilized world. It is not pretended that, either as to argument or facts, the conclusions reached are undeniable and irrefutable. It is believed, however, that they are substantially correct and that they will, at least, suggest food for thought and, perhaps, lead to many valuable conclusions to the readers of this book.

Many may infer, from the title of this book, that an increasing gold supply means continued prosperity. It has been seen that a rapidly increasing output and supply of gold does, for a time at least, give an artificial stimulus to industry that has the appearance of genuine prosperity. That it is not real and wholesome, because not founded on a just distribution of products, has been shown. In fact the prosperity superinduced by rising prices has many dark sides to it at all times. Some of these are: speculation in stocks, commodities and real estate; increased cost of production and of living; labor troubles; general unrest; inability of workers to purchase, at the high prices asked, the total products offered and needed; glutted markets; closed mills; and, if an increased supply of gold is not always forthcoming, a decline in prices that will result in depression and panic. If, however, as is probable, the gold supply shall continue to increase for many years to come, we are likely to have frequent and heavy declines in the speculative industries, followed by comparatively slight and brief declines in prices of commodities, such as occurred in 1857 and 1903, and by a

slowing down in industry in general which will be of short duration.

While falling prices usually usher in depressions and panics, they are more normal and natural than are rising prices. They discourage speculation and idleness and encourage economy and thrift. While they are most certainly less wholesome and less beneficial to industry, than stable prices, yet their evils are probably less harmful to industry and society than are the evils of rising prices.

As to the effect of gold depreciation on prosperity, the Hon. George E. Roberts, director of the mint, said in the *Banker's Magazine* of January, 1906:

"An increasing money supply does not mean uninterrupted prosperity. No supply can come forth fast enough to outrun the imagination of speculators. Whatever may be the original impulse to an advance movement, if the movement continues, speculation will become a factor in it, and a reaction must follow. The weakness of modern finance is in the vast holdings of marginal ownership, and no matter how much prosperity or how much money we have, that condition seems to remain much the same. This practice of using credit and reserves to the utmost exaggerates the effect of every fluctuation in the supply of money. After gaining nearly \$1,000,000,000 in cash in nine years, it might seem that the United States could spare \$100,000,000 without a panic, but we could not, or the half of it without alarm. Finally, while an ample supply of so peculiarly available a form of capital as gold plays an evident part in world-developments, let

it again be said that its work is as a medium and lubricant. It is not an ultimate form of wealth."

Mr. Roberts quotes Blanqui, the French economist, who said, about 1840:

"Everyone knows today that the real advantages which Europe derived from the discovery of the mines of the New World do not come exclusively from the abundance of the precious metals, but from the cultivation of the commodities for consumption which constitute the basis of our exchanges with that country. Gold and silver have disappeared; cotton, sugar and coffee remain. The single discovery of the potato was worth more than all the mines of Mexico and Peru."

Of course, if more gold does not mean more industrial prosperity it cannot, in the long run, mean more prosperity in the security markets of the world. This fact is becoming increasingly evident. Not only has there been a world-wide decline in bond values, as we have seen, the decline in the prices of stocks has been almost equally great. Mr. Charles F. Speare, in *Moody's Magazine* for February, 1907, showed that, during 1906, "a year of the greatest industrial activity known to all nations," there was a total shrinkage in security values of \$2,000,000,000. He credits the losses mainly to earthquakes, fires, wars, socialism, irritation of corporations, new taxes, high money rates, etc. Such a tremendous and universal shrinkage, under such industrial conditions of apparent prosperity, is certainly most remarkable and suggests the hollowness and artificiality of our present prosperity.

In this book we have aimed to present some of the more important factors that should be considered by

present-day investors. To a considerable extent the advantages and disadvantages of different classes of investments have already been adjusted and equalized, by higher interest rates, by lower prices of bonds and by higher and lower prices of stocks. Thus, the opportunities to take advantage of the depreciating value of gold are passing—the greatest have, indeed, already passed. Today, the man who has money can loan it out and get almost as much income as he will get if he judiciously invests it in lands, mines or good stocks. The man who has to borrow before he can invest will lose nearly as much in the high rate of interest as he will gain by rising prices. On the other hand, the prices of bonds have declined so that an investor can get within 1 or 2% of as much as he could get by loaning his money or by investing it where it would benefit by the increase in the prices of real property. As, however, the process of adjustment is far from complete and will not be completed for many years, there is still a great difference in investment returns from different properties. Wise investors, then, will study the gold factor, as they should always study all other factors affecting investments.

That this world-wide problem of the over-supply of gold will soon be pressing for solution in this and in many other countries can hardly be doubted. That a solution will soon, or within many years, be found and adopted is far less certain.

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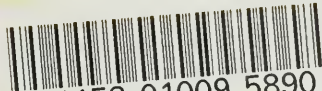
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